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General Oil Rate Revision May Follow 6.6 Case

Government Regulation For Oil Is Predicted At N. P. A. Meet

By A. M. PETTY

ATLANTIC CITY, Sept. 18.—The oil industry is slated for some sort of government regulation but, because of its present healthy condition, there are several other industries ahead of oil in the line waiting to be wheeled into the New Deal operating room, according to Donald R. Richberg, former NRA general counsel.

Speaking before the 35th annual meeting here this week of the National Petroleum Assn., Richberg indicated that he believes some government action to "improve" the oil industry is inevitable.

How drastic such government control measures will be, depends on how successful the oil industry is in efforts at self-government prior to its entering the surgical room to use Richberg's own metaphor.

Directing his remarks at the oil industry, the former NRA counsel said:

"Whenever the representative men of management induce adequate representatives of the workers and customers of your industry to join in working out a program to promote the largest possible production and consumption of its products at the lowest possible prices consistent with a fair return to investors and desirable wages for labor, then the intelligent regulation of this industry by a co-operation of private management and government will become possible and indeed probable.

"But just so long as managers, consumers and labor are

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General Investigation of Estimated Oil Weights May Bring Revision of Entire Rate Structure; Refiner Attacks 6.6 Figure in ICC Complaint

N. P. N. News Bureau

WASHINGTON, Sept. 20.—The weight of gasoline and other "refined oils" now being shipped by rail under a 6.6 pounds per gallon weight estimate has lessened appreciably since the *Mid-Continent Oil Rates*, 1925, were prescribed by the Interstate Commerce Commission, and an adjustment should be made in rail charges for their transportation, according to a complaint filed with the ICC by Anderson-Prichard Oil Corp., Anderson-Prichard Refining Corp., and Col-Tex Refining Co., independent refiners.

In addition to attacking the 6.6 pounds per gallon weight estimate, the complaint asserts that a rule made by the rails prohibiting loading in the domes of tank cars discriminates against shippers from southwestern points, since the temperatures at which most of their products are loaded are higher than the 60 degrees Fahrenheit basis on which volume is determined. Since they are charged for a full tank car shell, they are being overcharged, the complainants assert, as the gasoline or other product in the tank car at destination point will not be of sufficient volume to fill the shell, as it will have shrunk.

In their complaint, the companies point out that at the time (1925) the present rates were prescribed "an average weight of 6.6 pounds per gallon was approximately the correct average weight of refined oils shipped because of the relatively low gravity of the total volume shipped."

The commission, in fixing the 1925 rates, "took into account the said fact" and prescribed rates based thereon, they add, alleging that "at the time said rates were prescribed the average gravity of refined oils shipped was approximately 56 degrees, A. P. I."

Since that time, however,

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N. P. N. News Bureau

WASHINGTON, Sept. 20.—A complete overhauling of the freight rate structure for petroleum products, throughout the entire country, may result from complaints filed with the Interstate Commerce Commission against estimated weights for gasoline and other products used for about 30 years in fixing rail freight charges.

As time drags on and the ICC holds off setting these complaints down for hearing, the belief is growing among traffic men here that the commission will shortly launch a general investigation of estimated weights for all petroleum products.

Nine months ago, Tankar Gas, Inc., Minneapolis, filed a complaint with the ICC charging that the estimated weight of 6.6 pounds for gasoline was "unreasonable" and that the actual weight was something like 5.7 pounds. Reparations were asked on the basis of the alleged overcharges.

Two other complaints, attacking the estimated weights for all products, have been docketed by the ICC, several more are in the mill at the commission, and a number of others are being prepared for filing.

It is unusual for the ICC to allow such a long time to elapse without setting a date for a hearing on these complaints. Indeed, it was stated unofficially at the commission early last spring that the Tankar case would be set for a hearing in mid-summer at Minneapolis.

The commission would only be piling up trouble for itself if it went ahead and settled these cases, which involve relatively small areas in comparison with the entire country, and to do so would bring down a flock of similar complaints from other sections, it was pointed out by

Signs Point Need for Brake On Southwest Crude Output

N. P. N. News Bureau

By LAWRENCE E. SMITH

TULSA, Sept. 21.—The oil industry has begun the monthly drama of deciding how much oil it needs over the next month in the southwest. The procession started with the monthly hearing in Austin, Tex., in which the Railroad Commission of Texas listened to testimony then retired for a few hours to produce an order for October.

Crude production allowable for Oct. 1 was set at 1,405,844 barrels daily, 93,450 barrels under actual production Sept. 21.

Kansas will follow suit with a hearing on the 23rd and Oklahoma on the 28th. The other two states which regulate production by governmental agency order, New Mexico and Louisiana, have no stated times for hearings—in fact, Louisiana doesn't have any hearing at all.

The hearings will fairly well follow the pattern established over the past three months, according to advance indications. A presentation will be made by purchasers of crude oil that allowable production should be cut—fairly deep—to balance the commodity with the requirements. A much larger army of producers will oppose reductions in many, perhaps most, fields. The commissions, if they follow recent history, will go into a brown study and come out with what they believe to be a good compromise.

But purchasers are a little more insistent right now on their viewpoint than they have been earlier this year. They are not issuing statements of their views on matters in general but

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traffic men. They believe the long delay indicates the commission is waiting for more complaints to be filed and will then order a general investigation of estimated weights for all petroleum products.

Rate Cases Reopened

Should the estimated weights be revised by the ICC, it would probably mean a reopening of the Mid-Continent oil rates case, Docket 17,000, Part 3, and other large-scale oil rate cases of the past 10 or 15 years.

While the railroads have so far remained silent in the face of these estimated weight complaints, it is certain that, when the time comes, they will resist to the utmost any move which might curtail their revenue.

Rails Defense

If the ICC should cut the estimated weight on gasoline to some figure approximating the "actual weight", the rails quite probably will seek higher estimated weights on other products than gasoline now moving at the 6.6 weight, to balance off any loss in revenue from gasoline.

Another line of defense of the rails may be to seek an increase in gasoline rates if the estimated weight is reduced.

In the latest case docketed by the ICC, Anderson-Prichard Refining Corp., an Independent refiner, raises the question of rate revision in connection with its complaint against the 6.6 estimate for refined oils.

This refiner contends that, while 6.6 pounds may have been the correct average weight for refined oils at the time of the Mid-Continent case in 1925, it is incorrect now because of higher gravity gasoline with a lower weight.

Rates Hiked 15%

Failure to revise the 6.6 weight has brought about a situation where shippers are now paying about 15 per cent higher freight rates than they should, it was contended. If the ICC declines to change the estimated weight basis, Anderson-Prichard asks that oil rates be reduced 15 per cent.

Oil trade associations representing the refiner's viewpoint have so far adopted a hands-off policy in the estimated weight cases, leaving it to their members to take a stand individually.

For awhile, several of the larger associations were planning to intervene in the Tankar case. But they decided against this course on receipt of reports that counsel for Tankar denied they were seeking to have the ICC order rail rates fixed on an actual weight basis, stating that Tankar only wanted to obtain an estimated weight more acceptable than the 6.6 figure.

Major oil companies shipping much of their gasoline by pipeline and their heavier refined products by tank car are expected to back the railroads in the estimated weight cases — if there is a showdown.

Independent marketers, on the other hand, contend that they are losing from $14 to $18 a car on gasoline at the 6.6 pounds weight; and that this is not offset by a saving on heavier products moving at the same estimated weight, because their gasoline receipts are considerably greater in volume.

Reparations

Undoubtedly, some marketers have been interested in the matter of estimated weights by the prospect of recovering substantial reparations, based on the differential between actual weight of products received and 6.6 pounds.

But lawyers familiar with ICC policies believe that any hopes of huge reparations are doomed to disappointment even if the commission does sustain the attacks upon present estimated weights.

In the first place, there is the difficulty of proving the "actual weight" of carloads received over any extended period —or at least prior to the recent surge of interest in the matter which has led some marketers to have each car weighed as received.

And from the practical standpoint, it is pointed out that such reparations, if made to all affected parties, would just about bankrupt most of the railroads.

Cut Pipeline Advantage

Any savings on freight rates resulting from the commission's action in the estimated weight cases would, sooner or later, be followed by a corresponding reduction in prices to the consumer, it is believed. So, any longer margins for marketers would be only temporary.

Some marketers, however, are pressing the 6.6 pound estimated weight issue in the hope that it will reduce the competitive advantage of major oil companies with pipelines. Any shaving of the differential enjoyed by these companies due to their pipeline systems will work to the advantage of Independent marketers, they believe.

Another angle is that reductions in rail freight charges — either through lowering the estimated weight or actual reduction in rates — will also shave the differential enjoyed by marketers moving gasoline by truck and barge, at the same time the advantage of the pipelines is curtailed.

236 Illinois Oil Companies Enter 6.6 Pounds Case

N. P. N. News Bureau

CHICAGO, Sept. 20.—The Illinois Petroleum Marketers Assn., with 236 oil companies as joint complainants, has filed action before the Interstate Commerce Commission protesting the use of a weight basis of 6.6 pounds per gallon in determining railroad freight charges on gasoline. Reparations are asked on freight "overcharges" on tank car shipments over the past three years. The complaint names 158 railroad companies as defendants.

The complaint reads, in part:

"That said estimated weight of 6.6 pounds is now, and has been, used in arriving at weights upon which rates are assessed on shipments shipped and received in tank cars, carloads, by complainants.

"That said published estimated weight is substantially in excess of the actual weight.

"That the application of said estimated weight of 6.6 pounds on complainants' shipments of Gasoline, Casinghead; Gasoline, Natural; Gasoline, N. O. I. B. N. and Blended Gasolines, (as described); in tank cars, carloads, has resulted and is resulting in payment by complainants, of excessive and unlawful charges.

"That as a result complainants are in fact paying and have in the past paid and borne transportation charges on property not actually transported by defendants.

"That charges assessed and collected and estimated weights published . . . are unjust and unreasonable in violation of Section 1 of the Interstate Commerce Act, and that just and reasonable estimated weights for such transportation should be established. . . . "

Industry Oil Change Committee Presents Views To Car Makers

CLEVELAND, Sept. 21.—Continuing its effort to obtain the co-operation of the automotive industry in regard to frequency of crankcase oil drain periods, the petroleum industry's Committee On Oil Change Practice was again this week making calls in Detroit and South Bend.

During the past year, the committee, headed by W. H. Correa, New York, of the Socony-Vacuum Oil Co., Inc., has held a number of conferences with automotive executives and engineers in an effort to stave off some car manufacturers' tendency toward longer periods between drains.

While some 1938 engine drain recommendations are known to be in line with the committee's recommendations for draining oil every 500 miles during severe cold weather and every 1000 to 1500 miles during summer operation, other car manufacturers, because of oil filter equipment or particular engine design features, have not seen fit to follow the committee's suggestions.

Among this group are to be found oil drain recommendations ranging from 2000 miles to twice a year. It is toward these manufacturers that the committee is currently heading its caravan, in an effort to bring about a more conservative oil change attitude.

Meeting at Atlantic City last week, during the National Petroleum Assn. convention, the committee discussed ways and means of developing a future plan to bring all car manufacturers into line.

There were indications that the committee would adopt a more co-operative attitude in dealing with the manufacturers.

Immediate Plans

Immediate plans of the committee, as discussed at this meeting, will be in the direction of urging the automotive industry to drop its reference to specific mileage intervals for oil changes, and leave this recommendation to the oil companies. In other words, the committee believes (see NATIONAL PETROLEUM NEWS, Sept. 15 issue, page 33) that car owner instruction books might more effectively devote space to an explanation of what constitutes good engine lubrication, and let the oil companies assume the responsibility of judging when each car needs an oil change.

It was also recognized at this Atlantic City meeting that the 1938 car owner instruction books are now "beyond reach" as far as changes are concerned, and it was understood that the next best step would be for the committee to ask the car manufacturers who recommend extreme oil change periods to "soft pedal" these 1938 recommenda-

tions and to urge their dealers and field service organizations to be more conservative than the instruction books indicate. It is expected that this suggestion will be made by the committee when it meets this week with certain car manufacturers.

Car Makers Hesitant

There is a feeling among the committee members, which was reported to have been brought out at Atlantic City, that some car manufacturers would prefer to discontinue altogether any reference to specific oil change intervals, but hesitate because they fear that some competitors would take advantage of the opportunity to feature their "oil economy" point of lengthened change periods. The oil change committee is expected to meet this week with these "competitors," who are said to hold the oil change threat over the automotive industry's head, and it hopes to perform a co-operative miracle by getting these manufacturers to drop the alleged hatchet.

Behind the locked doors at its Atlantic City meeting, the committee discussed at considerable length the advisability of creating a bureau within the oil industry to prepare and distribute educational material on proper oil change procedure to the motoring public.

This idea was received favorable by the committee, and one member has been designated to appoint a sub-committee of three to assume the burden of developing a working plan for such an educational bureau, according to authoritative reports. When this plan is completed, it is understood it will again be presented to the main Committee on Oil Change Practice for further consideration.

SAE Dinner To Hear Commentator Carter

NEW YORK, Sept. 21.—Boake Carter, well known news commentator, will be the featured speaker at the annual dinner of the Society of Automotive Engineers, Oct. 28, at the Hotel Commodore in New York, it was announced today by John A. C. Warner, S.A.E. secretary and general manager.

The annual dinner is one of the outstanding events of the National Automobile Show week here, and it is anticipated that more than 1000 automobile executives and engineers will attend.

W. J. Davidson, general sales manager of the Winton Engine Corp., will be toastmaster, and S.A.E. president Harry T. Woolson will preside at a short business meeting.

Motor Fuel Road Tests Report Is Accepted by CFR

N. P. N. News Bureau

NEW YORK, Sept. 20.—Acceptance of the report of the motor fuel road test groups and continuation of the study of the data collected from road tests during the past winter and summer was announced by the Co-operative Fuel Research Committee today, after a meeting here Sept. 17.

These road tests were begun last winter to determine the suitability of the present anti-knock test method for testing present day fuels. Following the announcement last October, by Ethyl Gasoline Corp., of the changes in its anti-knock testing method, a series of tests on the road was undertaken by several groups ranging from the east to the west coasts. Tests were made on 19 winter type and 17 summer type fuels, using 63 cars of 23 different models, of which 56 were used in the tests made the past summer in these different regions.

The winter tests were made at temperatures ranging from about 20° to 60° F., and summer test temperatures varied from about 75° to 105° F. From the results of these data the influence of temperature on anti-knock ratings will be studied.

The laboratory work included the investigation of the effects of engine operating variables on the knock rating of 10 of the winter test fuels. These variables were spark advance, intake mixture temperatures and engine speed. By combining these variables, 30 different combinations were studied, covering a range which extended beyond that of both Research and Motor methods. Study is now being directed to the better correlation of laboratory and road test knock ratings, to bring the two into better alignment.

British Co-operate

Co-operation between American and British technologist groups is being carried out closely. Tests being made by the British Institution of Petroleum Technologists include five organizations which will use 30 cars to study 9 similar fuels; two of the cars are of American make, the others represent both the large and small British types. The same road test procedure as used in America is to be used in the British tests, and information will be exchanged between the two groups.

While no statement was made, nor will one be made now by the Co-operative Fuel Research Committee, rumor is rife that the further investigation of the entire anti-knock problem by these numerous tests may show that it is unnecessary and/or undesirable to adopt or to continue the use of the L-3 method which went into effect this month as regards the rating of leaded fuels. Rumor implies that the more exhaustive study of fuels throughout the ranges of different cars and of fuels differing widely in characteristics, has shown, in the opinion of many technologists, that the changes in the test method, and thus the changes in test results, are not warranted by the performance of present-day cars with existing commercial fuels throughout the country. Nothing is known of plans which may be under way, if any, and informed technologists in touch with the situation do not expect any action by any group on that phase of the problem until a complete analysis of the data collected by the committee has been made, and exhaustive study of these data has been completed by all interested organizations.

PWA Investigator On Tender Board

N. P. N. News Bureau

WASHINGTON, Sept. 20.—Edward W. Chatterton, for the past three years a special agent connected with the Public Works Administration's investigative forces, has been named a member of Federal Tender Board No. 1, Kilgore, Tex., it was announced here today by Interior Secretary Ickes. The tender board supervises interstate oil shipments under the Connally "hot" oil law.

Appointment of Chatterton brings membership of the board to two members. Since the death last month of C. Lincoln Waterbury, Jack W. Steele, chairman, has been the only member of the board, which started out with three members.

The new member, a resident of Chicago, has been connected with the Kansas City PWA office since his appointment to the investigative service in 1934, prior to which he had been in private practice for a number of years as a counsel in tax matters.

Chatterton first entered the government service at the age of 17, as a page and clerk in the Post Office Department. In 1909 he became a Post Office Inspector, and served in the office of the Chief Post Office Inspector making investigations of fraudulent use of the mails.

From 1912 to 1917 he was chief clerk and executive officer to the general superintendent of the Railway Mail Service, where he also was connected with investigative work. Resigning from this post in 1917, he entered the Army, returning in 1919 as a major. He now holds a commission of colonel in the Officers Reserve Corp.

After the war Chatterton again entered the government service, this time in the Internal Revenue Bureau, in which he became Deputy Commissioner of Internal Revenue in the Income Tax Unit.

FTC Drops Case Against Texaco

By Teletype
N. P. N. News Bureau

WASHINGTON, Sept. 21. — Federal Trade Commission today closed its case against The Texas Co., 135 East 42nd Street, New York, in which the company was charged with violation of the exclusive-dealing provisions of the Clayton act and the FTC act.

According to the Commission, the action was taken because Texaco "in December 1936 voluntarily discontinued the acts and practices charged in the complaint, which was issued on March 12, 1937, and because it did not appear to the Commission that there was any reason to believe that alleged violations of the law would be resumed."

The complaint alleged that the company compelled service station operators to deal exclusively in automotive parts and accessories it purchased from certain manufacturers of such products, thus violating Section 3 of the Clayton act. It was further charged that Texaco's practices and sales policy constituted unfair methods of competition in violation of Section 5 of the FTC act. (N.P.N. March 17, 1937, page 17).

Texaco filed its answer to the complaint April 30, asserting that it had cancelled all of its existing contracts with manufacturers in December, 1936, and that it was no longer distributing automobile parts or accessories except tires, tubes, and batteries, which it was selling only through company-owned and operated filling stations.

The Commission said the case was "closed without prejudice to the right of the Commission to reopen it and resume prosecution of the complaint should the facts so warrant."

Government Regulation for Oil Is Predicted at N.P.A. Meeting

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separately seeking to make government a partisan instrument for the special advantage of each pressure group, the improvement of this industry by public regulation is likely to follow the course of surgical relief, under which the surgeons successfully remove one diseased organ after another until finally the much relieved patient dies."

Closing with a more cheerful note, Richberg added, "The present health of the oil industry is such that you may be assured that several other industries will precede you along the road of surgical relief, thus allowing considerable time for experimentation with internal medicine — which may be otherwise described as constitutional treatment."

Some of Richberg's listeners, with the so-called oil conspiracy cases at Madison in mind, may have wondered how oil men can go in "experimentation with internal medicine" without arousing the interest of the Department of Justice anti-trust division.

The same idea was bluntly presented at the Sept. 16th session of the refiners' convention by Assistant Secretary of Commerce Ernest G. Draper who, in his speech on "Changing Relations Between Government and Business", urged a revamping and clarification of the federal anti-trust laws.

Clarify the Rules

"Business," said Draper, "is entitled to have its rules of conduct defined in a clear and understandable manner. Under present conditions, many of those who are making a sincere attempt to comply with these rules are hopelessly at sea over what they are and are not permitted to do.

"Court decisions are usually depended upon to clarify controversial points but our anti-trust laws in particular have become more and more muddled, as a result of judicial interpretation, so that now you can quote a judicial decision for almost any act of business conduct in the anti-trust field.

"As a part of its service to industry, government should redraft these (anti-trust) laws so that they will be both intelligible and fair to the average business concern," Draper added.

Opening the first day's meeting of the convention, Charles L. Suhr, Pennzoil Co., president of the National Petroleum Association, reviewed the association's 35 years of active life, commenting on its accomplishments in gathering statistics, keeping the members advised of legislation and litigation, developments in manufacturing methods, standards and tests, transportation, fire prevention and safety, and taxation.

Up To Individual

"The only limitation upon the usefulness of the Association to your company," Suhr said in conclusion, "is one which you yourself place upon it — we can tell you how it can serve you, but it is up to you to give us the opportunity to help you; and, in this connection, let me say that more and more trade association work, not only in our industry but in industry generally, is becoming more important.

"Surely we must, in our respective interests, keep abreast of the rapid changes particularly with respect to legislation affecting our industry, so that it behooves us to stand together and thereby not only help ourselves but our government in disposing of these complexities that arise in the best interests of all concerned, which means not only our own but primarily the public interest."

A symposium on "Thirty-Five Years of Co-operation" featured the afternoon session of Sept. 15, with representatives of three other oil trade associations as the speakers, bringing greetings to the industry's oldest trade association on its 35th anniversary. They were J. E. Moorhead, executive secretary of Pennsylvania Grade Crude Oil Assn., H. T. Ashton, executive vice-president of Western Petroleum Refiners Assn., and William R. Boyd, Jr., executive vice-president of the American Petroluem Institute.

Tribute To N. P. A.

Many amusing anecdotes of oil trade association history were related during the discussion, then turning serious for the moment, they paid tribute to the N. P. A. as the "pioneer and pace-setter in the great adventure in co-operation."

J. F. Winchester, manager of the automotive department of Standard Oil Co. of New Jersey, discussed from the oil industry's standpoint the Interstate Commerce Commission's proposed safety regulations for tank trucks.

Legislation enacted at the recent session of Congress was reviewed for the N. P. A. at the Sept. 16th meeting by Julian D. Conover, secretary of the American Mining Congress.

While protests against the undistributed profits tax were of no avail in the past session, Conover predicted that this much-criticized tax would be modified at Congress' next session.

"The undistributed profits tax," Conover declared, "has worked such a hardship on developing enterprises and has so curtailed expenditures for plant, equipment and development that there is every reason to believe a modification of its form can be expected in this next session of Congress. One suggestion which has been made is that there be a flat exemption of from 20 to 30 per cent of net income before the tax begins to apply."

Busy Washington

It is certain, according to Conover, that 1938 will be "a busy year at Washington and that it will be a time when united strength of the mineral producing industries will be required in order that industrial progress may not be checked and workmen thrown idle."

Critics of the Wagner labor relations law were assailed by Charles Fahy, general counsel for the National Labor Relations Board.

Fahy declared that the principles and provisions of the Wagner law are so "just and so basic" that they will endure unimpaired. Continuing his prediction, he said that the "fearless and fair administration" of the NLRB will overcome and

'Why The NRA Failed', As Told By Richberg, Blue Eagle Chief

ATLANTIC CITY, N. J., Sept. 18. — From his observation post as an elder statesman, slightly out of favor with the Roosevelt Administration, Donald R. Richberg, former NRA general counsel, succinctly outlined his views here this week of why the National Industrial Recovery Act failed to achieve its purpose.

Speaking before the National Petroleum Assn., Richberg pictured the NRA period as an incident in a class-struggle that is still to be settled.

"I am convinced," said Richberg, "that unless we can get more business intelligence into political policies and more political intelligence into business policies we are on the way to a struggle for power that will cost the American people more than any war or depression in our history.

"In the early days of the NRA there was a vast amount of co-operative enthusiasm which concealed and even suppressed many short-sighted, selfish designs. Business men saw an opportunity to carry forward long cherished theories of stabilizing business and assuring themselves of satisfactory prices and profits. Labor unions saw an opportunity to expand and strengthen their organizations and to gain long sought betterments in wages and hours. Even those who were traditionally fearful of big business and centralized power, were cheered with the promise that government would be on guard to protect the consumers.

"But, inevitably, conflicts arose and increased between competing economic interests. Business men observed that the new structure being erected for their occupancy had a strange and disquieting design. The floors were labor costs which could be jacked up by collective bargaining and legislation. The ceilings were prices which were to be held down by ruthless competition or forced down by political pressure and public competition. The side walls also moved inward by taxation screws. Now it might be hoped that an all-wise government would be able to prevent the floor from rising and the ceilings from coming down and the side walls from sliding in *too far*, so that enough ozone of reasonable profits would be left in the room to keep the breath of life in the business body.

"But there was something naturally terrifying in the invitation to occupy a place of business where the walls, floors and ceilings all moved in under outside pressure. So the NRA better business building was losing a lot of former tenants before the Supreme Court condemned the entire structure."

silence the "stimulated confusion and criticism which at times is spread around about this statute and its administration."

Taking as his topic "Legislated Merchandising", Edwin B. George, economist with Dun & Bradstreet, Inc., discussed the Robinson-Patman law and similar measures, both those enacted by Congress and those still pending.

At the association's traditional fellowship banquet Sept. 16, Fayette B. Dow, general counsel, presided as toastmaster, and presented a set of gold service plates to Mr. and Mrs. Otto Koch, in commemoration of their golden wedding anniversary. Mr. Koch is president of Kendall Refining Co., Bradford, Pa.

Herbert G. Eaton, Superior Oil Works, Warren, Penna., was presented with a silver tea service in recognition of his 35 years of activity as recording secretary of the N. P. A.

Michigan Runs Up

CLEVELAND, Sept. 18.—An upward trend in crude oil runs in Michigan the past six months is reported by the Oil and Gas Assn. of Michigan. In August 1624 wells produced 51,790 barrels of crude, as compared to 44,018 barrels from 1588 wells in July. Back in April, 44,858 barrels were produced by 1425 wells but production dropped to 42,000 barrels in May and June.

Suhr In Fourth Term As N. P. A. President

ATLANTIC CITY, Sept. 20.—Charles L. Suhr, chairman of Pennzoil Co., Oil City, was re-elected president of the National Petroleum Assn., to serve a fourth term, at its 35th annual meeting here. Other officers were also re-elected.

N. H. Weber, Pure Oil Co., Chicago, remains first vice-president and H. A. Logan, United Refining Co., Warren, Pa., second vice-president. G. B. Hunter, Quaker State Oil Refining Corp., Oil City, was re-elected treasurer and Herbert G. Eaton, Superior Oil Works, Warren, was continued in the office of recording secretary of the association, a position he has held during the entire 35 years of existence of the N. P. A.

The N. P. A. headquarters office personnel at Washington, headed by Fayette B. Dow, remains unchanged.

Halt Chiseling Of Tax Refunds With New Forms

LANSING, Mich., Sept. 20.—A new form of claim for refund of gasoline taxes has been prepared by the secretary of state in Michigan, providing numerous ways to check up on consumers who have in the past been careless in filing their claims.

The new report requires that the claimant must fill out a schedule of ownership and operation showing the number and character of all motor fuel equipment which he owns, also demanding separate invoices for each motor fuel purchase.

An added limitation is that the state gasoline tax department will not allow claims for refunds based upon a showing that part of the motor fuel was used in operating vehicles upon a public highway. Claims accompanied by invoices which show evidence of erasures or changes in dates, amounts, or any other material information will be disallowed in their entirety in the new claim form.

According to J. F. Wilson, of Port Huron, and president of the Michigan Petroleum Assn., jobbers in the state are highly appreciative of the secretary of state's efforts to reduce fraudulent claims for road tax refunds.

"This activity on the part of the secretary of state's office," commented Wilson, "has been welcomed by the jobbers who have long realized that too large a proportion of claims made by the consumers of gasoline for exemptions were fraudulent."

"They also have realized that it was a very difficult job to regulate or curtail the tendencies of consumers to file fraudulent claims. Considerable agitation has been made at various times to have the gasoline tax increased from three cents to four cents per gallon. It is the jobbers' contention that, if fraudulent refund claims and tax evasion could be stopped, the present tax law would yield a considerably larger sum of money, which would be available for highway purposes."

Nebr. Truckers Meet

LINCOLN, Sept. 20.—Four meetings of petroleum carriers in Nebraska who are members of the United Transporters of Petroleum Products are being held this week in Norfolk, Lincoln, Hastings and North Platte.

The association's fiscal year ends Oct. 1, and activities of the past year are being reviewed at the meetings.

'Open Season On Oil'

ATLANTIC CITY, N. J., Sept. 18.—It seems to be always an open hunting season for shooting at oil men and the oil industry, said William R. Boyd, Jr., executive vice-president of the American Petroleum Institute, speaking on "co-operation" before the National Petroleum Assn. here.

"Some one has said," Boyd declared, "that when a plumber makes a mistake, he charges double for it; when a lawyer makes a mistake, it means more business for some one; when a doctor makes a mistake, he buries it; when a judge makes a mistake, it becomes a law; when a preacher makes a mistake, nobody knows the difference; when an oil man makes the mistake of talking with his competitor, he is indicted.

"Anyway, in some enlightened countries, when a businessman is successful in helping stabilize his industry, frequently he is knighted by his government but over here in our neck of the woods he is more than likely to be indicted," Boyd added.

Kill City Chain Tax

RICHMOND, Va., Sept. 20.—A second proposal before Richmond's city council to levy a tax that would be felt more deeply by service stations than any other type of business, has been defeated.

A subcommittee of the council which held a hearing on the proposed city chain store taxing ordinance, has recommended the measure unfavorably to the council, and it is considered as dead as the $1 a foot driveway tax proposal which was defeated in a similar manner here some weeks ago.

The same subcommittee which considered the driveway proposal and rejected it, held the hearings on the latter measure—and were greeted by the same, or nearly the same, turnout of some 300 oil men, with the exception that at the latter hearing, grocery men and housewives added their objections to those of the oil men.

G. D. Thomas, of Associated Stations, a Richmond chain, presented the objections for the Richmond City Petroleum Industries Committee, which was instrumental in killing the driveway tax also.

Strike's Lifting Eases Strain In Fields in Mexico

N. P. N. News Bureau

NEW YORK, Sept. 20.—The end of the strike of oil workers in the Poza Rica field last week has relieved much of the tenseness in the Mexican labor situation and gives promise that pressure on the oil companies will be lightened, according to belief in oil trade circles here.

While the strike, which lasted almost two months and seriously curtailed the Mexican gasoline supply, apparently ended without any definite settlement of the problems involved, the attitude taken by the Mexican government appeared to lend support to the oil companies. Workers will receive 75 per cent of the wages lost during the period of the strike, but other terms were withheld.

The statement made recently by Josephus Daniels, U. S. ambassador to Mexico, that the U. S. expected Mexico to protect American oil company rights and that the State Department was watching the current labor situation there, was taken by many to mean that the oil companies will have the backing of the administration to prevent unfair treatment from the Mexican government.

Later, President Cardenas of Mexico told Mexican oil workers that he was "disappointed" in their attitude and that their refusal to wait for the Mexican Labor Board to adjust their problems was hampering a settlement.

Reports were that the Mexican government was embarrassed by the strikes as they caused the government to lose tax money which it needs to further its plan to put agriculture on a firm basis. This plan, which provides for dividing land among the peasants, is regarded as the most important step the Mexican government has undertaken to put the country on a sounder economic basis.

Selling Drunks

CHICAGO, Sept. 21.—Laws to prohibit service stations selling gasoline to drunken drivers are to be sought by the Chicago Motor Club. Announcement was made this week that the club will seek such laws in Illinois and Indiana, and in an ordinance in Chicago.

Illinois and Indiana legislatures will not convene until 1939, unless special sessions are called.

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"Chicago Dealers Trading Horses"

(From the Illinois Petroleum Marketers "Oil Can," September issue)

Chicago lessee dealers who took a most active part in endeavoring at the last session of the State Legislature to have a mandatory price posting bill enacted into law, have now turned their guns upon the city council of Chicago in an endeavor to have a local ordinance enacted making price posting mandatory in that metropolitan city.

There appear to be two sides to the story, however, which has all the earmarks of a "horse trading" deal. Chicago is always on the lookout for ways and means of raising new revenue and, if the city council does enact such a price posting ordinance to favor dealers, it will be only because the council itself wants something from the dealers. For a number of years Chicago has levied a tax upon underground storage and with the city council ever thinking of new ways to gather additional revenues, they are not overlooking any horse trading opportunity which presents itself.

An ordinance is pending in the city council to increase the tax upon underground storage a considerable amount, and it is understood dealers have agreed to this increase in levies if the council will in turn act favorably upon the pending price posting ordinance.

There is some doubt, as has always been the case, that any price posting law, whether city or state, can ever be enforced, and should the Chicago price posting ordinance be enacted and Chicago dealers find that it can not be enforced they will have gotten the worst of the bargain on their horse trading deal. They will have levied upon themselves an increased tax upon underground storage as a result of their maneuvers, and it is hardly likely that the good one ordinance will do, namely, the price posting ordinance, will compensate for increased tax will be forced to assume through the enactment of the revenue-producing ordinance sponsored by the city council.

Horse trading in politics does not always pan out as anticipated. Chicago dealers will undoubtedly find out that it would have been to their advantage to have left well enough alone.

Mesquite 'Grubbers' in Interstate Commerce? NLRB Will Decide

N. P. N. News Bureau

WASHINGTON, Sept. 20.—Waggoner Refining Co., Inc., and the W. T. Waggoner Estate, Vernon, Tex., will present to the National Labor Relations Board their contentions as to why the board should not accept the recommendations of an NLRB examiner and order the Waggoner interests to reinstate a group of discharged employes, at an oral argument here Sept. 24.

NLRB granted the oral argument after the Waggoner interests had filed lengthy exceptions to the recommendations of the examiner, Tilford E. Dudley, who held hearings in August on the charges that the Texas companies discharged a number of men for union activities, interfered with their employes' rights to self-organization, and otherwise violated the Labor Relations Act.

In this report to the board (42 pages in length), Dudley declared that the Waggoner refinery closed down after its employes held a union meeting, and that officials said those employes who wanted to come back under the same conditions as prevailed before organization could do so.

This, the examiner maintained, constituted interference with the employes in the "exercise of the rights guaranteed in Sect. 7 of the National Labor Relations Act (the self-organization provision)."

At the same time, Dudley's report declared that 14 employes of the companies, discharged subsequent to the meeting, were discharged for union activity.

He recommended that the board issue an order requiring the companies to "cease and desist" from interfering, restraining or coercing their employes in exercise of the right of self organization; that they post notices saying they have "ceased and desisted" and telling their employes they could join anything they wanted to, and that they offer all the discharged men their jobs back again.

Exceptions filed by both refining company and the estate assert they are not in interstate commerce, and hence not under jurisdiction of the NLRB. The estate, especially, maintains that its operations are confined to six counties in Texas, and that its connection with the refining company is the same as any other oil producer to the refining company. The examiner's report treated the two as one entity.

"Grubbing Gang" Members

About 11 of the employes which the NLRB examiner would have reinstated were members of the "grubbing gang" employed by the estate in grubbing mesquite. This, the exceptions assert, is purely an agricultural job, and not connected with interstate commerce in any way, and not subject to NLRB jurisdiction.

The grubbers were discharged because their work was done, the company asserts, not because of union activity. They were hired on a day-to-day basis anyway, it is claimed.

The refining company, in addition to declaring it is not in interstate commerce, except to the examiner's finding that it's written statement of policy, circulated among the men, does not interfere with the right of self-organization, but that it "discloses on its face that the respondent recognizes every right in the employes granted to them by the National Labor Relations Act."

The statement, quoted in the examiner's report, was to the effect that the company favored collective bargaining, but would not "submit the operation of the company to any person not directly responsible for the managerial policy. If this company can be operated as it has been operated, upon a basis of fair dealing, then its operations will continue. If it becomes necessary to surrender that policy, or to obliterate the managerial control which now exists, then the owners must cease operation."

The company closed the plant shortly after this, and the affiliation with the employes with the C. I. O. controlled Oil Workers International Union, with the statement that those who wished to come back to work under the regime prior to the wage demands of the group could do so.

The company, however, in its exceptions, declares that this was not a "shutdown," or a "lockout" but a closing of the plant for "cleaning out purposes necessary in normal operation of a refining plant."

The exceptions also deny that officials of the plant "took down names" of employes going to a union meeting, and threatened some of them that they were going to get their "ears pinned back," as charged in the report.

Mid-Continent SKYLINE

By LAWRENCE E. SMITH, N. P. N. Tulsa News Bureau

TULSA, Sept. 18

The stimulus which the military prowling up and down in Europe has given to oil is considerable. Should the President decide to go neutral in a big way and include oil as an article of munitions, the effect would be felt immediately and the delicately poised production situation would list several degrees.

Shipments of crude oil from Gulf Coastal ports to foreign destinations averaged 109,000 barrels daily in July and are said to have been fully as great in August. About half of this came out of the East Texas field. This figure does not include the refined products which moved from the ports of Point Isabel, Corpus Christi, Galveston, Houston, Port Arthur, Beaumont and New Orleans.

One thing after another has kept the crude export demand high for more than two years. A lot of Texas oil went to Italy to run Il Duce's tractors, planes, tanks and trucks in the conquest of Ethiopia and before that had died away the Spanish were at it. Several nations have been laying by a supply of oil just in case they finish choosing up sides in Europe and decide to go to work.

* * *

Commission Stands By Order

The Corporation Commission of Oklahoma ruled this week against the Skelly Oil Co. on its application for a rehearing of the case brought by the commission concerning potentials of Skelly's wells in the Fitts pool. The commission had adjudged the company to be guilty of "padding" the figures—proration in the pool is on the percentage - potential basis — and had ordered drastic reduction of the potentials and restriction of production to make up for the more than 400,000 barrels which the commission said had been overproduced because of the high potentials.

The Skelly company is determined to clear its name and it is said its next step is an appeal to the state Supreme Court. Appeal from a Corporation Commission order is direct to that court.

Maybe Some Excitement

Grand Jury is to convene in Oklahoma county (Oklahoma City) in October and the chief investigator for the state public safety commission has promised to lay before the jury a lot of hot stuff about stolen oil, illegal production and the like. He claims that tank car shipments of the oil are regularly made from the Oklahoma City field and he has intimated quite broadly that state employes may be involved.

That department isn't supposed to bother with oil affairs but the investigator has dealt himself a hand and the publicity has been handsome.

* * *

First meeting of the Interstate Oil Compact Commission since renewal approval was given by Congress and the President will be held Oct. 14 and 15 in Houston, advises Secretary Art L. Walker.

Last meeting of the commission was in Santa Fe in June. John R. Suman, president of Oil-World Exposition, Inc., invited the commission to come to Houston during the oil show, Oct. 11-16, inclusive. The Independent Petroleum Assn. of America will hold its annual convention in Houston during the oil exposition, the dates being Oct. 14-16.

The compactors will have the opportunity of renewing acquaintance with Secretary of the Interior Ickes, who didn't have anything good to say about the compact back in 1935. His utterances the past year, such as he has made, have been more charitable. He will address the Independent producers' association in Houston, Oct. 15.

* * *

Conservation Order

A gas-oil ratio program for the Moore pool, Cleveland county, Okla., was ordered by the state corporation commission, effective Oct. 1. On and after that date the maximum ratio of gas to oil shall be 4000 feet per barrel and surveys are to be made semi-monthly.

The order was issued following a hearing. The application was made by Stanolind Oil & Gas Co. and Amerada Petroleum Corp. who asserted that the ultimate recovery of oil would be greatly reduced through excessive production of gas with the oil.

* * *

The state of Texas realized $1,421,180 from the gross production tax on crude oil in July, the state comptroller reveals. This was an all-time high in revenues, although not in barrels. May's production was the peak but the price averaged less and the tax is a percentage one.

The department said that 77.358 per cent of the oil produced in July brought an average price of $1.234 per barrel. The state collected on 43,541,129 barrels.

Mid-Cont. Producers Assn. Meetings

N. P. N. News Bureau

TULSA, Sept. 20.—Directors' and annual membership meetings of the Mid-Continent Oil & Gas Assn., have been announced as follows, Clarel B. Mapes, general secretary reports:

Annual meeting of the general board of directors of the association, Tulsa, Dec. 14, according to J. D. Collett, president.

Louisiana-Arkansas Division, annual membership meeting, Slattery Bldg., Shreveport, Oct. 27, according to L. M. Moffitt, president, and A. R. Campbell, secretary.

Kansas - Oklahoma Division, annual membership meeting, Roof Room, Tulsa Club, Tulsa, Nov. 19, according to Robert S. Kerr, president.

Moss Oil Expands

CLARKSVILLE, Mo., Sept. 20.—R. S. Moss, owner of the Moss Oil Co., has purchased the gasoline and oil business of the Pike County Oil Co., the deal combining Pike County's two leading independent oil distributors. The Pike County Oil Co., organized several years ago, will not be dissolved, but will be confined to the distribution of tires and accessories.

Sam D. Thompson, who has been the local agent for the Pike County company, will continue in that capacity with the Moss Oil Co. The consolidation provides storage facilities for 152,000 gallons of gasoline, kerosine and tractor fuels.

Allowables Cut Seen for Texas

By Telegraph

AUSTIN, Texas, Sept. 21.—Little testimony was given to the Railroad Commission of Texas, Sept. 20 at its monthly proration hearing here which would indicate a need for reducing production in Texas oil fields in October.

On the contrary, several requests for higher allowables were made by buyers. Nominations to purchase again were much higher than current production and totaled 1,648,356 barrels daily, which was only 9420 barrels less than the comparable figure for September.

A reduction in allowables however, seems certain. In a press statement Sept. 18, Col E. O. Thompson hinted at a cut of 100,000 barrels.

Allowable production Sept. 18 was 1,499,384 barrels, having grown through completion of 614 wells from the Sept. 1 allowable of 1,429,398 barrels.

Most of the hearing was spent on East Texas, where a substantial drop in bottom hole pressure was recorded for the period Aug. 11 to Sept. 12. The decline was eighty-nine hundredths pounds average on 91 key wells tested by commission engineers. The decline was slightly less than for the preceding monthly period.

Cuts Protested

Several operators in the East Texas field appeared to protest any cut in allowable. Jack Blalock, representing certain producers, warned against it as a legal proposition. He asserted that the marginal well law cannot be applied in favor of pumping wells to the detriment of flowing wells.

He recommended that a close survey be made to find the wells which do not make their allowable. Right after him came Bryan Payne, East Texas operator, whose remarks on the same subject were constructed by Col. Thompson as a reflection on the commission's fairness and a preference by Payne for federal regulation. A heated debate ensued.

S. A. Guiberson, Jr., of Dallas, proposed a plan for handling the East Texas problem, including pressure losses and water encroachment. He would have allowable production include water as well as oil, or total fluid withdrawal. The crowd divided at once on this subject. Operators whose properties are in the water area on the west side opposed the plan.

'5 Gals. for 70c' Signs Not Legal In Kansas, Held

By Telegraph

TOPEKA, Kans., Sept. 21.—Gasoline dealers in Kansas must post at each service station conspicuous signs on which is displayed separately the motor fuel price and taxes collected on each gallon sold, or they will face prosecution under the state's Motor Fuel Tax Law.

No longer will dealers be permitted to display signs of the type which read "Five Gallons for 70 Cents."

That is the ultimatum which has been issued by the Kansas Department of Inspections and Registrations. To prove the department means business inspectors recently had issued 38 warrants charging station attendants in Kansas City, Kans., and Wyandotte county, with violation of the law. Penalty provided upon conviction ranges from a fine of $25 to $500 or a jail sentence of from 10 days to six months.

The legal division of the department reported today that the 38 cases still were pending in the justice courts from which the warrants had been issued. From other sources it was reported that some of those arrested were preparing to plead guilty when their cases are called for trial. The warrants were issued after 12 inspectors spent a week in and around Kansas City, Kans., making a thorough check of price signs. The inspectors have moved on to other areas, it was reported today, but no more warrants have been issued. "Reports of our action in Kansas City," a deputy in the department said, "evidently convinced dealers throughout the state we intended to enforce the law and they have accordingly hastened to comply."

Law's Requirements

The Kansas Motor Fuel Tax law states specifically that a price sign must be posted on or near each driveway, must be sufficiently conspicuous to meet with the approval of the inspection department and must separate the tax levies from the price of gasoline. While the inspector is given leeway in approving the size of the sign, the law states that the figures must be contrasting colors. The usual practice is to use black and white.

Samuel Albea, chief deputy director of the department, was quoted in press dispatches at the time of the wholesale arrests in Kansas City, with the following statement:

"In striving to enforce the 'price posting' provision of the law we are endeavoring to protect the public and motorists. A sign reading 'Five Gallons for 70 Cents' constitutes a violation. It is misleading because in most instances the motorist is required to pay the tax in addition and he does not get the bargain expected.

"Under the law a placard posted in a conspicuous place must state the price per gallon, plus three cents state and one cent federal tax."

More Investigations

Indications are meanwhile that the present probe of price posting violations is just one of a series of investigations of alleged violations of the Motor Fuel Tax Law. An audit has been ordered of the 3,000,000 certificates for tax exemption now on file in the department and, if fraudulent claims for exemptions are discovered, prosecution of the tax evaders will be made, it is stated.

Recent preliminary investigations, it was reported indicated that a sizable amount of gasoline has been sold in Kansas tax exempt, for use other than on state highways. A reported 124,886,000 gallons, or 27 per cent of total motor fuel consumed in the state, was tax exempt. The department has reported there are 85,000 holders of permits to purchase gasoline tax free in the state. This is approximately one for every eight automobiles registered. The department reports that approximately 12,000 exemption certificates are filed with it daily.

Price Posting Law Sought in Chicago

By Teletype

CHICAGO, Sept. 21.—Movement of retailers here for a Chicago municipal gasoline price posting law, since the proposed Illinois price posting measure has been vetoed by Governor Horner, has been halted when it was decided that such a price posting law was not a constitutional function of the city.

Retailers, however, still favor such legislation and are reported to be studying the Illinois oil inspection act to see if "rules and regulations" which the inspection department is empowered to promulgate would cover the marketing of gasoline.

New Texas Gulf Refinery

TULSA, Sept. 11.—Pontiac Refining Co., headed by Saul Singer, has let contract to Mid-Continent Engineering Co., Dallas, for construction of a 4000-barrel refinery west of Corpus Christi. Storage capacity of 235,000 barrels will be provided.

Pa. Posting Law Court Test Due Late This Month

By Telegraph

HARRISBURG, Pa., Sept. 20.—First court test of Pennsylvania's new price-posting law is expected late this month, when Judge William M. Hargest, of Dauphin County Court, will hold hearings on making permanent the temporary injunction he granted last week restraining the state revenue department from revoking the permits and thus closing the stations of William B. Brown, Dauphin County service station operator.

Hearing was to have been held Sept. 15 but was postponed because counsel were not prepared to appear. No date was set for the hearing, but it probably will be held late in September.

Brown, said to be one of the largest gasoline dealers in central Pennsylvania, obtained the injunction after he had been cited before the liquid fuels bureau of the revenue department and notified that the permit for one of his stations—at Dauphin, near here—had been revoked.

Permits Cost $1

Under the price-posting law, which went into effect July 1, each gasoline pump in the state is licensed at a cost of $1 a year and holders of these permits or licenses are required to post the price at which gasoline is sold. Sale of motor fuel below the posted price is a violation of the act, and provision is made for revocation of the licenses of violators by the state Revenue Department.

Agents of the liquid fuels bureau testified at the hearing before Charles M. Finley, chief of the bureau, that they purchased gasoline from the Dauphin station at less than the posted price. Brown had 18 cents a gallon posted and they testified they bought 12 gallons for $2, after some "haggling"; reminiscent of the bygone prohibition era when "stool pigeons" went to speakeasies, made alleged "buys", drank the illicit liquor, and forthwith hailed the offending barkeeper into court.

After the bureau announced that Brown's permit for the Dauphin station had been revoked, it cited Brown to appear again and show cause why the permit for his Amity Hall station, at the intersectiion of William Penn Highway and the Susquehanna Trail, should not also be revoked, it appearing that alleged "buys" also had been made there.

Hearing Never Held

However, the second hearing was never held by Finley, for on the same day it was to occur, Brown's counsel went before Judge Hargest and got the temporary injunction, on the ground that enforcement of the law deprived his client of his property and livelihood without "due process" of law, as guaranteed by both federal and state constitutions.

Counsel for the dealer declares that, should the Dauphin County Court rule against him on this "due process" contention, he will carry the fight to the supreme court of the state.

At the hearing before Finley, officials of his bureau said that other permits had been revoked for alleged violation of the act, but that Brown is the first operator to take the case into court.

Barnsdall Asks Separate Trial

MADISON, Wis., Sept. 20.—Motion for a separate trial, in the oil conspiracy case, of the Barnsdall Refining Co. and Edward B. Reeser, of Tulsa, president, was filed today with the U. S. District Court for Western Wisconsin by J. F. O'Ryan, Barnsdall attorney. Reeser and his company are among those named in the so-called Standard of Indiana indictment.

The motion will be heard Sept. 21 by Federal Judge Patrick T. Stone at Superior, Wis., where he is now holding court.

Those who have been subpoenaed by the government to testify at Madison include Walter P. Jacobi of Tulsa, Wadhams Oil Co.; Neil Buckley of Tulsa, Cities Service Oil Co.; L. J. Wescoat of Chicago, Pure Oil Co.; J. P. Mosher, Jr. of Cleveland, Platt's Oilgram, Keith Fanshier of Chicago, Chicago Journal of Commerce, and J. C. Evans, Barnsdall Refg. Co.

Permit Revoked

WASHINGTON, Sept. 18. — The Securities and Exchange Commission has revoked the registration of Midwest Oil & Royalty Co., Inc., Oklahoma City, as a broker or dealer in over-the-counter markets, charging that the company, which was selling fractional working interests, "indulged in the practice of submitting to prospective purchasers an engineer's report containing an estimate of the amount of oil recoverable" from the tracts "without first filing the same with the Commission,"

Jobbers To Discuss Plans To Push Biermann Oil Bill

N. P. N. News Bureau

WASHINGTON, Sept. 20. — A semi-final draft of the program for the annual convention and trade exhibit of the National Oil Marketers Assn., in Chicago Oct. 12-14, discloses one of the primary items of business to be taken up by the Independent jobbers is listed as, "Discussion of Plans to Push the Biermann Bill through Congress."

The bill, sponsored by Congressman Fred Biermann, Iowa, would divorce marketing from other branches of the petroleum industry. When it was introduced in the last session of Congress, Paul E. Hadlick, secretary of the N. O. M. A., said:

"It would prevent the major oil companies from treating marketing as a dumping ground and from subsidizing their marketing losses out of profits in production, pipeline operation and refining."

Lay Legislative Plans

Plans for the Biermann bill campaign will be discussed at the closing business session of the convention Oct. 14, when the marketers will also lay a program for other 1938 legislative activities, as well as listen to reports of convention committees and discuss resolutions drawn by their committee named for that purpose, according to the program released by Hadlick.

The trade exhibit, to be held on the same floor at the Stevens Hotel with the convention hall, will be opened to visiting jobbers at 9 a. m. on the opening day of the convention, Oct. 12, and the first convention session will be opened at 1:30 p. m. that day. M. B. Whiting, Whiting Oil Co., Clifton Forge, Va., president of the National Oil Marketers Assn., will call the convention to order and introduce Carl O. Beroth, Acme Petroleum Co., Chicago, who will give the address of welcome.

An address by Whiting, entitled "A Year of Effort," will follow, in which the president will discuss the aims and achievements of the N. O. M. A. the past year.

J. S. Keller, sales director of the Chek-Chart Corp., Chicago, is also scheduled to make an address at this session, on "Balanced Selling."

After the speaking program, convention committees will be named, and the session will close with a period for discussion and comments from the floor by Independent oil jobbers.

Roy R. Fisher, Argo Oil Corp., Detroit, vice-president of N. O. M. A., will preside at the morning session Oct. 13, according to the program, introducing Congressman Biermann, who will discuss at length his marketing divorcement bill.

This will be followed by a speech on the Social Security Act by a speaker to be announced later.

Also on the program for this session is a speech by Clarence J. Schock, of Schock Independent Oil Co., Mt. Joy, Pa., who will talk on "Conservation, Production Control, Proration, Taxation and Competition."

Secretary Hadlick will make his annual report at this session, and the nominating committee will subsequently make its report on nominations for members of the N. O. M. A. board of directors, followed by election of the board.

A special session on "Fuel Oil Problems" is scheduled for the afternoon of Oct. 13, although the presiding officer has not yet been announced. Two addresses are scheduled on this program, to be followed by discussion from the floor.

Walter H. Wingrove, Wingrove Oil Co., Sheboygan, Wis., will preside.

Speakers at the fuel oil session, the first ever devoted to this topic at an N. O. M. A. convention, will be Leod D. Becker, publisher of the Fuel Oil Journal, who will take up the question of "How Much Fuel Oil and at What Price," and Milton A. Powers, chief engineer of the Timken Silent Automatic Division of the Timken-Detroit Axle Co., whose subject has been announced as "Fitting Fuel Oil Specifications to Burner Performance." Powers is also chairman of Technical Committee E on Burner Fuel Oils of Committee D-2, American Society for Testing Materials.

Large Trade Exhibit

The Oct. 14th session of the convention will take up the legislative program, pass resolutions, and otherwise wind up the business of the convention.

Exhibitors in the trade exhibit include makers and distributors of practically every sort of equipment and service used by the oil marketer, Hadlick says.

The complete program follows:

Tuesday, Oct. 12

9 a. m. Registration and Distribution of N. O. M. A. Convention and Trade Exhibit Badges to Independent Oil Jobbers and Exhibitors at Registration Desk at Entrance to Exhibition Hall in Hotel Stevens.

9 a. m. Formal Opening of Trade Exhibit in Exhibition Hall. Inspection of Exhibits.

1:30 p. m. Formal opening of 1937 Annual Convention in Exhibition Hall. President M. B. Whiting, Clifton Forge, Va., Presiding.

Call to Order by the President.

Address of Welcome—by Carl O. Beroth, Acme Petroleum Company, Chicago.

Address by President M. B. Whiting, "A Year Of Effort".

Address by J. S. Keller, Sales Director, The Chek-Chart Corporation on "Balanced Selling".

Discussion and Comments from the floor by independent oil jobbers.

Appointment of Convention Committees.

Adjournment for the day.

7 p. m. Closing of Trade Exhibit for the day.

Wednesday, Oct. 13

9 a. m. Registration.

9 a. m. Trade Exhibit open for inspection.

10:30 a. m. Convention Session Continued in Exhibition Hall.

Vice-President Roy R. Fisher, Detroit, presiding.

Call to Order by Vice-President Fisher.

Address by the Honorable Fred Biermann, Member of Congress from the Fourth Iowa Congressional District on "The Proposed Petroleum Marketing Divorcement Bill".

Address by Clarence J. Schock, Schock Independent Oil Co., Mt. Joy, Pa., on "Conservation, Production Control, Proration, Taxation and Competition."

Address on "The Social Security Act"—Speaker to be announced.

Annual Report of Secretary Hadlick.

Discussion and Comments from the floor by independent oil jobbers.

Report on Nominations for Board of Directors by the Nominating Committee.

Election of Board of Directors for ensuing year.

Adjournment for Lunch.

2 p. m. Special session on "Fuel Oil Problems" in Convention Hall. Walter H. Wingrove, Wingrove Oil Co., Sheboygan, Wis., presiding.

Address by Leod D. Becker, Publisher, Fuel Oil Journal, New York, on "How Much Fuel Oil And At What Price".

Address by Milton A. Powers, Chief Engineer, Timken Silent Automatic Division, The Timken-Detroit Axle Co., Detroit, and Chairman of Technical Committee E on Burner Fuel Oils of Committee D-2, American Society For Testing Materials, on "Fitting Fuel Oil Specifications To Burner Performance."

Discussion of "Fuel Oil Problems" from the floor by independent oil jobbers.

Adjournment for the day.

7 p. m. Closing of Trade Exhibit for the day.

Thursday, Oct. 14

9 a. m. Registration.

9 a. m. Trade Exhibit open for inspection.

10;30 a. m. Convention Session continued.

Presiding—The President of the National Oil Marketers Assn.

Call to Order by the President.

This session will be the principal Business Session of the Convention.

Discussion of Plans to push the Biermann Bill through Congress.

Discussion of Plans for other 1938 Legislative Activities.

Report of Convention Committees, including discussion of Resolutions presented.

Consideration of unfinished business and matters from the floor.

Adjournment.

5 p. m. Final closing of Trade Exhibit.

Conference Asks U. S. Law To Stop 'Gas' Bootlegging

N. P. N. News Bureau

LOS ANGELES, Sept. 18.— How to collect, administer and spend the gasoline tax dollar was the subject of a four-day session of the North American Gasoline Tax Conference at San Francisco, Sept. 14-16.

At the closing session of the conference, following a discussion on gasoline tax evasion, in which millions of dollars in revenue were declared lost to the states, a resolution was adopted calling for national legislation to halt the traffic in "bootleg" gasoline.

Approximately 200 delegates from 30 states attended. Many were state or municipal officials, or members of trade associations connected with highway construction and use. All were interested in solving the problem of conserving the dollar by spreading the tax money over as great an amount of road surface as possible.

Governor Frank Merriam and Mayor Rossi, on behalf of the state and city respectively, officially welcomed the delegates. The latter strongly urged that all bridges built, building or contemplated, be toll-free to the motoring public.

Diesel Fuel Tax

Highlights of the meeting included considerable discussion on tax exempt sales of gasoline to military post exchanges and naval stores, with progress indicated toward solving this problem in some states.

Discussion on a tax of diesel oil used in highway vehicles brought agreement among those attending the conference that it was impracticable to tax all diesel fuel and give a refund

(*Continued on page* 18)

Tax Conference Asks U. S. Law On Bootlegging

(Continued from page 17)

on that not used for highway purposes.

E. L. Cleveland, Socony-Vacuum Oil Co., argued that a tax on diesel fuels should be imposed on the user rather than the distributor. George L. Sheppard, controller for the state of Texas, outlined the methods employed by different states to collect a tax on diesel oil used in highway vehicles and said some states were solving the problem by high registration fees on diesel powered vehicles.

H. P. Leatham, Utah tax commissioner, made a report to the conference on a universal motor vehicle fuel tax law and pointed out that the definition of the fuel must be broad enough to include all that used in motor vehicles.

Arthur Pugh, chief accountant, Wisconsin Treasury Department, and A. P. Delahunt, American Petroleum Institute representative, stressed the importance of the state and all other interested agencies fighting gasoline tax evasion.

New Taxation Plan

Harley C. Stephens, manager of the tax department, Standard Oil Co. of California, speaking on mutual problems of the state and the gasoline distributor, discussed Grover Edmond's plan of taxation, which would call for taxes on liquor, gasoline and cigaretttes to be collected by the federal government supplemented by a general manufacturers' excise tax levied by Congress in lieu of the present excise taxes on particular articles and the proration of returns to be distributed to the states. He said that gasoline tax suggested was four cents per gallon, three and one-half cents of which to be distributed to the states, on a ratio in which population, motor vehicle registrations and highway mileage would be considered.

"If you want to collect taxes on motor fuel today," Delahunt, American Petroleum Institute representative, told the conference, "you must define motor oil so broadly that you make taxable all fuels commonly and commercially used to propel vehicles on the highways."

"With motor fuel tax rates so high and sales growing so rapidly," he said, "the opportunity to take a 'flyer' in the gasoline business at the expense of the state offers a strong temptation to racketeer minds."

Millions of dollars, Delahunt declared, were lost in this country annually through evasion of the tax, or by manipulations of those who take advantage of loopholes in the law as at present written.

Officers of the North American Gasoline Tax Conference elected for the ensuing year were: H. P. Leathem, Utah state tax commissioner, president; Arthur Pugh, chief accountant of Wisconsin Treasury, vice-president; A. B. Tucker, of the Alabama state tax commission, secretary; and Dixell L. Pierce, secretary of California state board of equalization, treasurer.

Tulsa was chosen as the meeting place for the 1938 conference.

Crude Stocks Decline 1,363,000 Bbls.

WASHINGTON, Sept. 21. — Stocks of crude petroleum were depleted by 1,363,000 barrels during the week of September 4 to 11, according to Bureau of Mines, after increasing almost a million barrels during the previous week. On September 11 the stocks were 309,054,000 barrels, compared with 310,417,000 barrels on September 4, and 298,448,000 barrels on September 12, 1936.

Stocks by grades, showing changes in each during the week follow:

(Thousands of barrels)

Grade of crude oil	Sept. 4	Sept. 11	Change from Sept. 11
Penna. Grade	4,253	4,272	+ 19
Other Appal...	827	866	+ 39
Lima-N.E. Ind., Mich...	1,481	1,437	— 44
Ill.-S.W. Ind..	9,617	9,607	+ 53
N. La. & Ark.	10,279	10,100	— 179
W. Texas and S.E. N. Mex.	31,211	31,938	+ 727
E. Texas.....	25,344	24,802	— 542
Other M.-Cont. ...	129,859	129,331	— 528
Gulf Coast....	24,873	24,422	— 451
Rocky Mt.....	23,937	23,806	— 131
Calif.	26,857	26,493	— 364
Foreign	3,179	3,167	— 12
To. rptd. wkly	291,717	290,304	—1313
Estimates of unrptd. stks.	18,700	18,750	+ 50
Total stocks	310,417	309,054	—1363

Trucker Permit

WASHINGTON, Sept. 20.—A joint board set up under the Motor Carrier Act has recommended that the Interstate Commerce Commission grant the application of Petroleum Transit Corp., Detroit, to operate as a contract trucker of gasoline and petroleum products between certain points in Michigan, Ohio and Indiana. At the same time the board recommended the corporation's application for a common carrier certificate be denied. Petroleum Transit operates about two dozen, tractor-trailer tank outfits, and has contracts with several shippers, the report says.

U.S. Spends $100,000,000 For Oil— How Many Jobs Per Barrel?

N. P. N. News Bureau

WASHINGTON, Sept. 20.—A survey to determine how many man-hours of labor go into the filling of the government's petroleum products contracts—now running at a rate well above $100,000,000 per year—is being considered by the Bureau of Labor Statistics.

The Bureau already has conducted similar studies with respect to Uncle Sam's cement, lumber, steel, brick, and plumbing and heating supplies purchases.

A survey covering petroleum purchases like those studies already made, would include the man-hours required to produce, refine and transport the products to their destinations, and would break the statistics down to the point where they would give a figure purporting to represent the man-hours required to produce, refine and deliver a given quantity—say 1000 barrels—of gasoline, fuel oil, or other product.

No complete tabulation of government purchases of petroleum products ever has been made, even from the standpoint of dollars spent per year by the government for various products.

Since the Walsh-Healey Public Contracts act became effective last September 28, however, the Bureau has kept records of purchases made under its provisions. The act requires that all materials sold the government on contracts in excess of $10,000 be produced in compliance with certain labor standards, which include a 40-hour week and other requirements, some of them discretionary with the Secretary of Labor.

W-H Contracts Listed

During the first nine months the W-H act was in operation (through June, 1937), purchases of petroleum products by federal agencies under contracts subject to its provisions totaled $35,570,237,* according to the Bureau.

Many purchases, of course, are on contracts which aggregate less than $10,000, and the Bureau keeps no record of these. No government agency does, in fact, hence estimates have been restored to in arriving at total government purchases.

A check of purchasing officers in the various government agencies which make contracts for petroleum products—Treasury Procurement Division, Navy Department, Interior Department, War Department, etc.—reveals that the general percentage of Walsh-Healey purchases to total purchases of petroleum products is about 60 to 65 per cent. Some agencies pointed out that all their contracts for petroleum products were above $10,000, and hence all were subject to the W-H act. Others make many small contracts, for less than $10,000, to cut the general percentage down.

However, applying the lower estimate—60 per cent—to the federal agencies' purchases of $35,570,237 under the act, we get a figure of $59,283,728 covering their purchases over the nine-month period.

Buy $80,000,000 Worth

Assuming that purchases for the third quarter of 1937 (July-September) will run at about the same level, and about the same percentage, a twelve-month figure for purchases by these federal agencies is found to be approximately $80,000,000.

These figures cover only purchases by the established agencies of the government. In addition, the Bureau tabulates value of all material purchased for use on construction projects financed by federal funds, under the PWA, RFC, Works Program, and regular governmental construction, not covered by the figures above.

In 1936 petroleum products

A.S.M.E. To Meet During Oil Expo

HOUSTON, Sept. 17.—Mechanical phases of the petroleum industry will be discussed at the Oil-World Exposition here, at a meeting of the Petroleum Division of the American Society of Mechanical Engineers the evening of Oct. 12. The exposition dates are Oct. 11 to 16. Papers are now being prepared for this meeting by the following committee:

W. F. Herbert, The Texas Co., chairman; W. P. Preston, Texas Gulf Sulphur Co.; W. W. Scott, Humble Oil & Refining Co.; F. M. Levett, The Texas Co.; D. D. Alton, Southern Pacific Lines; A. B. Steen, Jr., Humble Pipe Line Co.; and Nathan Janco, Reed Roller Bit Co.

The aim of the exposition is to disseminate data on operating methods for all branches of the petroleum industry and to present a complete display of equipment for oil field and oil plant use.

purchased for use on these construction projects were valued at $32,638,605, the Bureau's figures show.

Figures for these construction purchases in the first half of 1937 are running at about the same levels as last year, so it is safe to use the 1936 figure as a 12-month figure for these purchases, to be added to the 12-month figure arrived at for purchases by the established federal agencies, and the total is above $112,000,000.

Man-hour Survey

The Bureau's survey of "labor requirements in petroleum production," if it is carried out as proposed, will attempt to show just how many men worked how many hours to fill these contracts, and will include work at the well, at the refinery, at the pipeline and tank car (whichever method of transportation is used), at the bulk plant, truckers' time, and all other labor required.

In previously published surveys, the Bureau found that the general average number of man-hours required to produce 100 barrels of cement and deliver them to government purchasers was 47.6; the general average for a gross ton of steel products delivered, 53 man-hours, and for 1000 board feet of lumber, about 29 man-hours.

Replies to a letter which is now being sent out to all successful bidders on government petroleum products contracts—as well as contracts for all other purchases—will probably form the "back-log" of information upon which the proposed study will be based.

The letter reads, in part:

"The Department of Labor has been asked to determine the economic effect of all federal expenditures for materials. We shall appreciate it therefore, if you will supply us with an estimate of the labor requirement in your establishment in the fabrication of the material supplied under this contract. The estimate of labor costs which you used in arriving at your bid will be quite satisfactory."

Several "Problems"

However, in the case of "open" or indefinite contracts, such as are used for most petroleum product purchases, the Bureau is likely to find it difficult to ascertain the man-hours of labor required to fill the contract, since, until the time period covered by the contract is elapsed, the number of units purchased will be an "X" quantity. To get around this, the Bureau probably will ask that man-hour estimates be based on the "approximate" needs, as listed in the contract. After the contract has expired, the figures will be adjusted to fit the exact amount purchased.

Another difficulty which will confront the statisticians in determining the economic effect of petroleum purchases, as reflected in man-hours of employment, is the fact that some contracts are made with jobbing or marketing companies who will be unable to furnish an estimate of labor required to produce, refine and transport the products to them before they deliver it to the government.

For this reason, Bureau attaches said, the final figure will very likely have to be based on estimates supplied by integrated companies covering all operations, from the well to the government storage tanks. This estimate will, then, be applied to all purchases, whether from integrated company or marketing company.

In any event, it will be interesting to have even an estimate of just how much work is created for laborers in all branches of the oil industry by the government's purchases of its products, purchases which range from heavy Bunker "C" fuel oil up through all the products to 100-octane gasoline for airplane motors, and other highly refined fractions of petroleum, as well as liquefied gases and many so-called "by" products.

*Purchases by federal agencies under the W-H Act during the first nine months of its operation included:

Asphalt, oil, tar and mixtures	$4,311,360
Fuel oil	15,667,377
Gasoline	13,575,739
Lubricating oils and greases	1,749,178
Compressed and liquefied gases	266,583
Total	$35,570,237

Royalty Sales Control Upheld

N. P. N. News Bureau

LOS ANGELES, Sept. 18. — Landowners' and overriding oil royalties are an interest in real estate and their sale, therefore, is subject to control by the California real estate commissioner, according to a recent opinion by State Attorney General Webb. The same decision holds that participating percents are properly classed as securities and come under the jurisdiction of the state corporation commissioner.

The general assumption in the oil industry had been that the commissioner of corporations did not have jurisdiction over the disposal of mineral rights, landowners' royalties and overriding royalties when the sales were not for the purpose of operating the property. However, at the request of interested parties some time ago, the commissioner of corporations assumed jurisdiction and issued permits to individuals involved in such transactions.

Gradually the procedure connected with the issuance of permits by the department became much stricter and the control that at first had been invited was later resented. The recent ruling is an attempt to remove objectionable features in the enforcement of the law and, at the same time, to settle jurisdictional questions. Whether it will achieve either of these objectives is questioned by many observers.

Because of the general interest in the legal points involved, the Oil Producers Agency has distributed to California oil operators and royalty owners copies of two opinions on this subject rendered by Attorney General Webb, and has asked for expressions of opinion as to the effect the rulings will have on royalty transactions.

Approximately 2000 projects are estimated to be subject to control by the state department of real estate as landowners' royalty and overriding royalty transactions. According to Webb's ruling persons dealing in these particular royalty interests, in addition to filing them with the department as a subdivision, must be licensed real estate brokers or salesmen when acting as agents for the sale of these interests. In addition to this, individuals who purchase these royalties for immediate resale and conduct this operation as a business are held to be brokers or salesmen and, therefore, are required to secure appropriate licenses.

Colorado Marketers Hold Convention

COLORADO SPRINGS, Sept. 20.—Oil marketers from over Colorado are attending the Colorado Oil Men's convention, at the Broadmoor Hotel Sept. 19 and 20. A golf tournament occupied the first day. Today, the work of the Colorado state and county petroleum industries committees is being discussed by Chairman W. E. Thomas.

Carl Barker, of the Shell Petroleum Corp., St. Louis, is to talk on "The Petroleum Industry and Its Relation to the Public." Robert M. Thomas, Rocky Mountain Regional Vice President of the National Assn. of Petroleum Retailers, is to talk on the retailer's problems. J. A. Lentz is to talk on "The Dealer Market Plan." Guy G. Alexander, secretary of the Colorado Petroleum Marketers Assn., Denver, is to talk on the "Jobbers Place in the Oil Picture."

Barnsdall Closes English Contract

By Teletype
N. P. N. News Bureau

TULSA, Sept. 21.—Under provisions of a contract closed this week, Barnsdall Refining Corp., will supply a large English concern with approximately 80,000 barrels of gasoline monthly from its new Corpus Christi, Texas, refinery. The contract, according to Barnsdall officials, will cover virtually the entire gasoline output of Barnsdall's refinery on the Gulf coast.

Contract becomes operative some time the first of November, when new refinery is completed. It will continue through Dec. 31, 1938 and may be renewed at that time. Price basis used in contract was not announced.

Gasoline from the Corpus Christi plant is expected to test from 76 to 77 octane number the C.F.R. motor method.

Barnsdall's Corpus Christi plant, when completed, will cost approximately $1,000,000 and will have four Dubbs cracking units with daily capacity of 5000 barrels of crude. Placedo and other Texas crudes will be run through the refinery.

Dixie Directors Meet in Chicago

N. P. N. News Bureau

CHICAGO, Ill., Sept. 20.—Dixie Interstate Board of Directors have arranged to hold their fall meeting at the Stevens Hotel here Oct. 11, the day before the annual convention of National Oil Marketers Assn. opens at the same hotel.

According to the "Dixie Marketer," publication of the Dixie Distributors, the date and place were chosen to enable Dixie jobbers to attend also the sessions of the N.O.M.A. convention.

Michigan Dixie Distributors had originally invited the Interstate board to hold its fall meeting in Detroit, but withdrew the invitation upon the suggestion of Interstate Chairman C. E. Lewis, that the meeting be held in Chicago. Dixie distributors generally are urged to attend.

Indiana 'Gas' Demand

INDIANAPOLIS, Ind., Sept. 21—Motor fuel consumption in Indiana during July, 1937, increased slightly more than 10 per cent over the same period in 1936, the state auditor reported. Total motor fuel consumption in July this year was 59,037,645 gallons, 5,891,651 gallons above July, 1936.

Complaint On 6.6 Filed By Refiner

(*Continued from page 9*)

"the higher gravity gasoline with a lower weight has been and now is being shipped, and at this time and for several years past the actual weight of the refined petroleum shipped is approximately 6 pounds or less, they said.

The complaint continues, with regard to the "dome-loading" regulations:

"Complainants would further show that because of the rules and regulations above set out, charges are assessed based upon the full shell capacity, and complainants are not permitted to load any gasoline beyond the shell capacity of tank cars; that the temperature of gasoline and other refined oils would increase or reduce the actual volume, and that 60 degrees Fahrenheit is the basis upon which volume is determined.

"That the atmospheric temperature at the origin points named (refinery points in Oklahoma, Texas, Louisiana and Kansas) is far in excess of 60 degrees Fahrenheit during the greater part of the season when gasoline shipments are being made, and that under the rules and regulations it is impossible in the ordinary conduct of business for complainants to load a tank car snell full of gasoline, which is the shell capacity of the tank car, and therefore they are forced to pay freight on large quantities of gasoline that was not and cannot be under said rules and regulations transported by defendants."

Say "Unreasonable"

By reason of these two allegations, the complainants say they have been forced to pay and bear charges in excess of reasonable charges "and far in excess of actual weights transported, and complainants are paying and in the past have paid and borne transportation charges on property not transported by defendants."

Such charges are in violation of the Interstate Commerce Act, the complainants contend, and are "unjust and unreasonable and discriminate against shippers of gasoline and in favor of shippers of other commodities who pay for the actual weights transported."

The complainants in this case go farther than those in the 6.6 cases already filed, which ask the commission to fix new charges and reparations.

The latest complainants besides asking this relief and remedy, assert that they "would further show that in the event this commission took into account such rules and estimated weights when the rates now in effect were prescribed, conditions have so changed and the actual weights so diminished that said rates are now unjust, unreasonable and unlawful, and that this commission should, in justice and in conformity with the letter and the spirit of the laws governing, either revise the estimated weights to more nearly correct actual weights, or revise the rates now in effect by a reduction of approximately 15 per cent in order to make allowance for the change of conditions and the lower actual weight of refined oils now shipped as compared with the shipments made at the time the present rates were prescribed."

Many Rail Defendants

More than 100 railroads are named defendants in the complaint, which asserts that the complainants ship refined petroleum products from the four states mentioned above to "points in the United States," especially in Indiana, Illinois, Missouri, Iowa, Nebraska, Wisconsin, Minnesota, the Dakotas and Michigan, which is Western Trunk Line Territory.

Previous complaints filed on the weight of gasoline have not mentioned the "dome filling" regulations against which Anderson-Prichard and Col-Tex complain as unjust. The earlier complaints were filed by Tankar Gas., Inc., Minneapolis, and the Indiana Independent Petroleum Assn.

Following the lead of the Indiana marketers' association, it is apparent that several other state associations are due to either intervene or file separate complaints in the 6.6 estimate.

The Illinois Petroleum Marketers' Assn. has sent to ICC a similar complaint, which has not yet been docketed, and it is understood the Wisconsin and Missouri associations of independent marketers are planning to file.

Oil Trucker Argues His Right To Serve Newly Opened Fields

N. P. N. News Bureau

WASHINGTON, Sept. 20.—The practice of restricting the certificate of an oil field equipment hauler to just those fields which he was serving on the "grandfather" date (June 1, 1935) would eventually drive such truckers out of business, it was contended here at an oral argument before Division 5 of the Interstate Commerce Commission.

The argument was on the application of Union City Transfer, Beaumont, Texas, for a common carrier certificate to transport oil field equipment to any place in Texas and Louisiana. A joint board which held hearings on the application recommended to the ICC that the certificate be granted to cover only the points served by Union City prior to the "grandfather date," and the application for oral argument was filed (N.P.N. Aug. 11, p. 30).

Denouncing the joint board's recommendation as a limitation which would eventually drive Union City out of business, Raybourne Thompson, attorney for the firm, asserted that the company had held itself out for 20 years to serve any oil field in the two states and should be permitted to do so by the ICC.

Would Be "Ruined" Later

"If Union City is held down to serving the designated area, it might not hurt its business much now, but when a new field is opened outside of that section, the concern would be unable to serve clients there, and would be ruined," Thompson declared.

Argument that the joint board had been "liberal" in recommending a certificate covering as large a territory as it had, was heard from J. R. Bell, representing a group of Texas railroads, who said a trucker should be held down to fields it served before the "grandfather" date, and, although public convenience and necessity might call for transportation to new fields, the ICC had no right to authorize operations to such fields on a "grandfather" application.

In its brief filed last month, Union City pointed out the necessity for flexibility of operations of an oil field hauler, and the awkwardness that would result should he be required to get a certificate for "new operations" every time a new field opened up.

The Union City attorney also pointed out that shippers testifying in the hearing in Texas were unanimous in stating the firm should be allowed to serve all sections of the two states in order to afford them the service which they needed.

Bell, on the other hand, contended that mere "holding out" to truck to all sections did not constitute operation under the "grandfather" clause.

2 Ohio Jobbing Companies Sold

CLEVELAND, Sept. 21.—Sales of the Rogers Oil Co. and the Coleman and Burnett Oil Co., both jobbers of Lorain, O., to the Texas Distributing Co. and the Socony-Vacuum Oil Co., Inc., respectively, were announced today.

The Texas-Rogers deal was reported to have involved $75,000 and the Socony-Coleman and Burnett transaction about $60,000.

Purchase of Rogers Oil will add approximately 10 per cent to the gallonage of Texas Distributing, already the largest jobber in the middle west of products of The Texas Co.

Ten years ago Myron E. Glass, president of Texas Distributing, and his partner, David N. Myers, bought out a 600,000-gallon-a-year business to start their company. They had expanded it to 15 millions when the Rogers Oil purchase was announced.

Rogers Oil operated two bulk plants and four company-owned stations and was a distributor of Fleet Wing Corp. products. The company was started in 1924 by Lynton H. Rogers, at present president of the Ohio Petroleum Marketers Assn., and his father, R. F. Rogers.

Carlyn Rogers, sales manager of the company, will continue with Texas Distributing. He is a brother of Lynton, who has been a director of the O. P. M. A. for eight years and was elected president in February of this year.

Socony-Vacuum in Ohio in 1931 merged the Great Western Oil Co. and the Commonwealth Oil Corp. in Cleveland to form a nucleus of its present organization in the state. It has expanded partly through acquisition of distributors since and the purchase of Coleman and Burnett was the most recent of such acquisitions. The 1937 gallonage of the company in the state is expected to total about 75,000,000.

Carl Coleman, president of Coleman and Burnett, is continuing with Socony-Vacuum, while M. A. Burnett, treasurer, will operate two retail outlets that were owned by the jobbers.

Coleman said that he had experienced in the oil business a constant narrowing of the distributors margin, which somewhat duplicated his experience ten years ago. At that time, he said, increasing competition as a distributor of tires caused him to enter the oil business. The jobbing concern was organized 21 years ago.

Signs Point Need For Allowable Cut On Crude Output

(*Continued from page 9*)

their language is quite eloquent. Their statements are beginning to read like this, "Effective Sept. —— the Blank Crude Oil Purchasing Co. will buy blank per cent of the allowable production from the blank field . . . . "

Less the Allowable

That sort of thing is beginning to pile up. In western Kansas, the area of a spirited development campaign throughout this year, Stanolind Pipe Line Co. is taking 80 per cent of the allowable production through September from its connections in Ellis county. In August it was 90 per cent. Connections on another western Kansas pipeline system were far under-run in both July and August, although no announcement was made as in the Stanolind situation.

Gulf Oil Corp. announced this week that, on Oct. 1, it would cease buying oil in the Lisbon field of north Louisiana. This field has been active this year and the Gulf is the only pipeline outlet. Production has been running between 12,000 and 14,000 barrels daily. Caddo Pipe Line Co. (Grogan Oil) had made arrangements to lay a pipeline but it is reported in the trade the company is now working on a deal to lease the Gulf's system as far as Shreveport. Should this arrangement be made, it is probable that market will be afforded for at least part of the Lisbon production without interruption and complete shutdown of the field, as first appeared likely.

Restricts Runs

Gulf's action was reported to be due to congestion on its line system south to Port Arthur. The company is also restricting takings from the Jennings field, coastal Louisiana, where a deep sand discovery some months ago has resulted in an increase in production. Gulf has been taking between 5000 and 6000 barrels daily; it will take 1000, effective Sept. 30.

Atlantic Crude Oil Purchasing Co. has also announced curtailment of buying in a West Texas area. Atlantic, during August, bought and ran 24,201 barrels daily from properties in Ward county, of which only 1994 barrels were from Atlantic properties. Fields affected are North Ward, South Ward, Shipley, Estes and Dobbs. The reduction in purchases, the company said, will be about 36 per cent, or between 7000 and 8000 barrels daily.

The company said it had been buying for many months in excess of its requirements in Ward county, such requirements having been nominated to the Texas Railroad Commission regularly.

"We have continued these purchases in the hope that the allowable would at some early date conform with our requirements," the statement said. "However, we now find it necessary to restrict our purchases immediately. . . . We wish to assure you that every effort has been made to turn part of this production to other purchasers and we wish to advise that it will be entirely agreeable to this company if you wish to dispose of your current production to others."

The effective date of this reduction in purchases is Sept. 25. Other buyers in Ward county are Gulf Oil Corp., Texas-New Mexico Pipe Line Co. and Wickett Refining Co.

Buyers Are Bearish

Purchasers in Oklahoma and Kansas, or some of them at least, are expected to tell the regulatory bodies of those states in coming hearings that allowables must be reduced. One purchaser asserts that Kansas should cut at least 15,000 barrels off the daily allowable and Oklahoma 25,000 barrels.

Too much development, the same old story, is the trouble. This has been a big year for the driller. He has really poured it on. New money has been attracted to production developments and it has been placed in areas that yielded their share of the mounting production. Allowable production has stepped up, along with the ever-growing potentials. State commissions are reluctant to deflate the situation abruptly. The producer who is on the cuff in a big way at the bank—and there are many who are—needs every barrel he can produce and sell and a public official is loath to inflict the punishment that comes with the continual whittling of allowables.

Yet something must be done, the buyers say, for their requirements are just so much and they can't keep on absorbing the excess. They do not want to go into a big storage program, for they were a long while in reducing the last one. The trend now is to storage.

Storm Warnings Up

Texas and Louisiana enjoy a natural advantage over Oklahoma and Kansas because of export business and coastwise movement to Eastern seaboard. The difference in ability to take this market lies in the transportation rates, just as in the case of Illinois, whose new production is displacing an equivalent amount from Oklahoma and Kansas. But the storm warnings are flying in Texas, too.

The accompanying table shows how Texas allowable and actual production have gone up this year. The figures on allowables are on daily average basis, taken from the railroad commission's monthly reports. The latest available is for July. The allowables are considerably higher than the figure announced for the first day of the month, for new wells' allowables are not fitted into a set total, as it is attempted to do in Oklahoma and Kansas, but are added on. Thus, the state's allowable increases day by day throughout the month.

The table also shows the actual production as reported to the commission and as the Bureau of Mines gives it and it shows the difference between the bureau's forecasts of crude demand and that which the commission allows to be produced.

Allowable and Actual Crude Production in Texas

(By Months, 1937, Figures in Barrels)

Month	Daily Average Allowable (R. R. Commission Figures)	Daily Actual Production Figures)	(Bureau of Mines Figures) Daily Actual Production	Demand Forecast	Excess Allowable Over Forecast
January	1,295,923	1,272,992	1,268,000	1,176,000	119,923
February	1,370,797	1,331,969	1,349,000	1,203,400	167,397
March	1,443,220	1,401,246	1,404,000	1,256,600	186,620
April	1,408,414	1,373,721	1,382,500	1,297,900	110,514
May	1,464,591	1,425,335	1,431,200	1,340,800	123,791
June	1,418,779	1,387,253	1,391,400	1,354,000	64,779
July	1,443,962	1,405,944	1,415,700	1,375,100	68,862
August	1,551,734*	.....	.....	1,395,200	.....
September	1,429,398†	.....	.....	1,413,600	.....

*Allowable on Aug. 18; figures for month not available.
†Allowable on Sept. 1.

New Lube Plant At Richmond For S. O. California

N. P. N. News Bureau

LOS ANGELES, Sept. 18.—To increase production of high viscosity index oils, Standard Oil Co. of California is constructing a new lubricating oil plant at its Richmond refinery. The plant will include a Duo-Sol refining unit and an MEK-benzol dewaxing unit.

Charging capacity of the Duo-Sol plant will be 3500 barrels per day of residuum from high cold test California crude, when producing finished lubricating oil of 90-95 V. I. The refined waxy oil from the Duo-Sol plant will be dewaxed to zero pour, using a mixture of methyl-ethyl-ketone and benzol.

Yields are expected to be about 40 per cent in Duo-Sol treating and 75 per cent in dewaxing, resulting in a finished oil production of approximately 1000 barrels per day. The dewaxed oil will be distilled to produce a complete line of high viscosity index motor and aviation oils.

The complete plant is scheduled to be placed in operation in June, 1938. E. B. Badger & Sons Co. has been given the contract for construction of the dewaxing unit, which is licensed under The Texas Co. patents. The Duo-Sol process is licensed by Max B. Miller & Co. which will also act as construction contractor.

A hydrogenation plant is also being constructed at the Richmond refinery, primarily for the production of high octane aviation gasoline. This plant, which is scheduled to be in operation by Jan. 1, 1938, will charge polymers produced by the new process recently developed and installed at Richmond, by which gas from the cracking plant is converted into gasoline.

The hydrogenation plant is licensed by the Hydro Patents Co. and is designed to operate at a pressure of 3500 pounds per square inch. The rated capacity will be approximately 1000 barrels per day of base stock, which can be blended to meet aviation gasoline specifications up to 100 plus octane. The plant is also designed for the hydrogenation of other products.

70 Wells Completed

NEW YORK, Sept. 20.—The completion of 70 oil wells, with an initial net production of 41,008 barrels daily, was reported by the Sinclair Prairie Oil Co. for the months of July and August.

Plant Corrosion Prevention Discussed by Refining Group

By Telegraph

WICHITA, Kans., Sept. 21.—Corrosion in cracking equipment and unsatisfactory water for plant operations being more or less constant problems among Kansas and northern Oklahoma refiners, more than 75 plant operators attended here today the first of the regional technical meetings being sponsored by the manufacturing committee of the Western Petroleum Refiners Assn.

The plant men heard Robert E. Puckett, chief chemist for Barnsdall Refining Co. at its Wichita, Kans., plant, outline in complete detail the practical methods used in preventing corrosion at that plant; heard L. D. Betz, of the W. H. and L. D. Betz Co., Philadelphia, describe colloid chemistry and its application to water conditioning and then listened to E. M. Matson, Universal Oil Products Co., Chicago, discuss "cracking plant inspection."

Puckett's step-by-step outline of the solution of a corrosion problem that seemed to drop suddenly out of a clear sky, on two occasions at the plant, was listened to with great interest and caused a lengthy round-table discussion.

Acidized Crude

When the first corrosion showed up in the pipe still Puckett said; "Significant with our observation of a suddenly developed corrosive condition was the fact that this situation developed shortly after the oil field from which we were pumping had been acidized. Our observation has been that acid-bearing crude should be neutralized in the field and thereby prevent its contamination by iron salts."

He said also that, in addition to the presence of acid salts, free hydrochloric acid was present and that subsequent analysis of Kansas crudes showed they ran from a trace to as much as seven pounds of hydrochloric acid per 1000 barrels.

The second sudden corrosion problem developed in a new cracking furnace which, Puckett said, was caused by none of the known factors accounting for corrosion. "We have formed a rather vague idea of the cause of the trouble as being an accelerated *sulfur* corrosion due to traces of acid salt or perhaps a cyclic *sulfur* corrosion due to unknown factors."

In the discussion which followed Puckett's paper, plant operators apparently were agreed that more care must be taken to remove salts from crude; that ammonium and lime both were excellent corrosion preventives, and that use of alloy still tubes had proved of considerable benefit. Puckett had said that, in the new cracking unit, with equal pipe size and despite a handicap of nearly 200 degrees temperature, the carbon molybdenum steel withstood corrosive conditions in which the carbon steel failed. One operator said his experience had been that alloy tubes were more desirable throughout since he had found that use of alloy tubes in some sections cut corrosion there but appeared to increase it in other sections where the tubes were not used.

One operator said that, in using ammonium, he had had some difficulty in the clogging of heat exchangers with ammonium chloride, another operator said he had eliminated a similar situation by heating his crude to around 250 degrees and then flashing off the water in a flash tower.

In his discussion of colloidal chemistry and its application to water conditioning, L. Drew Betz, of the W. H. & L. D. Betz Co., Philadelphia, said certain types of colloids have been found to possess exceptional merit in the field of water conditioning.

"These may briefly be classified," Betz said, "as protective colloids and reactive colloids. Their action is vastly different and the general tendency to class all colloids used in water purification together, has led to confusion and misunderstanding of the value of these materials in this work.

"A protective type of colloid is one that does not enter into the reaction, but rather is supposed to form a protective sheath around a crystalline precipitate as it is formed. This will prevent the coalescing of several small crystals to form larger ones, or their adhering to surfaces when settling out of solution. The reactive type of colloid is one that possesses infinitely more value, in that it possesses a direct reaction to remove from solution, various incrusting solids such as calcium and magnesium."

The speaker classified starches and tannins as protective colloids and said they possessed certain values in inhibiting crystal growth. "They are both hydrophobic colloids," Betz said, "and are positively charged and will not react with any polyvalent positive ion, such as calcium and magnesium.

"Another colloid which does possess the desired property of reacting with these polyvalent ions, and which we have very successfully applied to our work, in water conditioning, is one belonging chiefly to the lamanaric acid series," he continued. "These colloids are hydrophilic and carry a negative charge and may be peptized to various degrees with sodium salts. The amount of peptizing agent employed determines to a large extent the particle size of the sol. When calcium or magnesium ions, or any other polyvalent positive ions are added to a system with this sol present, a selective absorption of the calcium and magnesium ions occurs with the removal of these ions from solution.

"An ion of calcium or magnesium will be removed for each two negative charges carried on the micelle and each particle is therefore capable of taking up several calcium or magnesium ions. This results in the transference of the colloid from a sol to a gel and thus the actual removal of calcium and magnesium is effected in an organic form, in a type of precipitate which cannot adhere or crystallize due to the entire absence of a crystalline structure. Furthermore, the gel precipitate formed, by virtue of its enormous surface, possesses the ability to remove suspended solids through the physical property of absorption, to a very large degree."

Not a Cure-All

Concluding his discussion, Betz said that colloids are not a cure-all for all water conditioning problems, and that their use should be under the direction of chemists who have made a study of their application and who are in a position to intelligently recommend where they may be used to their greatest advantage.

"The oil refiner is faced with two major water problems," Betz concluded. "One of these is the problem of conditioning for boiler purposes; the other, the problem of water conditioning for cooling. Reactive colloids have a wide and very favorable application in both these fields and can be used in a decidedly beneficial manner, in solving both problems. Their most advantageous use, however, can only be determined by a complete study of the individual problem in hand."

Following the presentation of the papers the plant operators visited the Barnsdall plant and inspected the equipment which Puckett had discussed at length.

U. S. High Court Asked to Review Tidelands Case

By Teletype
N. P. N. News Bureau

WASHINGTON, Sept. 21. — The question of ownership of tide-covered oil lands off the California coast may be settled by the U. S. Supreme Court, should it grant the petition of the Bankline Oil Co., operating a lease off the coast near Santa Barbara.

The Bankline company's petition asks the high court to issue a writ of certiorari to the ninth circuit court of appeals and to review the case, in which the company contends its income from production of the lease is not taxable by the U. S. The circuit court held the income was taxable.

The company leases the land from the state of California, and maintains that the "state of California holds its tidelands in a governmental capacity in trust for the benefit of the general public."

Any tax upon Bankline's income from this lease, which reserves royalty to the state, "is a tax upon an instrumentality of the state, and is therefore improper," the petition says.

Cites Earlier Case

The petition cites the ruling of the Supreme Court in the case of Borax Consolidated vs. City of Los Angeles and declares it holds that "when the original 13 states joined together to form the Union, title to tidelands was reserved to them. Similarly, when California was admitted to the Union, title to tidelands bordering on its shores passed from the U. S., which had held them since they were acquired from Mexico, to the State."

Therefore, reasons the petition, the state leased the lands to Bankline in its capacity of "trustee", and the taxes which the U. S. seeks to collect from the income of the company as a result of this lease would be taxes upon an instrumentality of a state, and unconstitutional.

However, in the Borax Consolidated case cited by Bankline, the lands in question were those between high and low tide. The controversy over the tidelands which led to the introduction of the Nye resolution in Congress, involves the lands between low water mark and the three-mile limit.

Another petition for a writ has been filed in the same case by Solicitor General Stanley

Reed, who asks the high court to reverse another part of the lower court's opinion which holds that Bankline is entitled to depletion allowance for wet gas which it purchased under contract from producers in the Signal Hill field.

The opinion holds that Bankline, which processed the wet gas, producing dry gas and gasoline, had an interest in the gas below ground, and is thus entitled to depletion allowance. The contracts with producers were such, according to the lower court ruling, that the fair market value of the wet gas exceeded the contract price which Bankline was paying, hence it had an economic interest in the gas.

Reed's petition, filed for the Internal Revenue Bureau, says the court erred in holding the company was entitled to "depletion allowance if it paid less for wet gas under its contracts than the market value," and in failing to hold that the company "had no interest in the wet gas in place in the earth which could be the subject of a deduction for depletion."

Bushnell Dies

LOS ANGELES, Sept. 18. — James Francis Bushnell, 69, president of Seaside Oil Co., died at Santa Barbara Sept. 14, following a long illness. He organized the Seaside Oil Co. nearly 40 years ago and since then has occupied a prominent part in the marketing of petroleum products on the Pacific Coast.

Mich. Shippers Ask Lower Rate

N. P. N. News Bureau

WASHINGTON, Sept. 20.—"Pipeline competition" is listed as the reason for an application made to the Interstate Commerce Commission for a reduction in freight rates on crude petroleum amounting to almost one-half the present rates, filed by rail carriers serving the Buckeye field in Michigan.

According to the application, filed under the sixth section of the Interstate Commerce Act and asking to publish the reduced rates on one day's notice (which the ICC is certain not to permit), the rails ask to charge 13 cents per 100 pounds from Gladwin, Mich., to Canton, O., in lieu of the 25 cents they have been charging under class rates.

The application avers "there is a very large production of crude oil in the so-called Buckeye field in the vicinity of Gladwin, Mich., and practically all of it is being moved from the Buckeye Field by pipeline."

The proposed rate, according to the rails, is necessary to move the traffic by railroad, and shippers advise that if the proposed rate is not established, the crude will not move to Canton, but will go into pipelines or be transported by water to Bay City, and thence by tanker vessels to other points.

The shippers also say, according to the application, there will be a continuous movement by rail from the field to Canton if the 13-cent rate is established.

DAILY AVERAGE PRODUCTION IMPORTANT DISTRICTS
American Petroleum Inst. Figures

	Week Ended Sept. 18 Barrels	Sept. 11 Barrels
Oklahoma City	147,250	148,800
Total Okla....	609,150	604,500
East Texas...	476,750	475,750
Total Texas..	1,490,400	1,479,800
Rodessa	51,150	48,900
Total La.....	261,300	255,950
California	694,200	685,600
E. of Rockies.	2,947,000	2,956,800
Total U. S....	3,641,200	3,642,400
Crude imports	76,430	57,710
Tot. new sup'ly	3,717,630	3,700,110

Gas, Fuel Stocks Up 1,500,000 Bbls. In Last Week's Operations

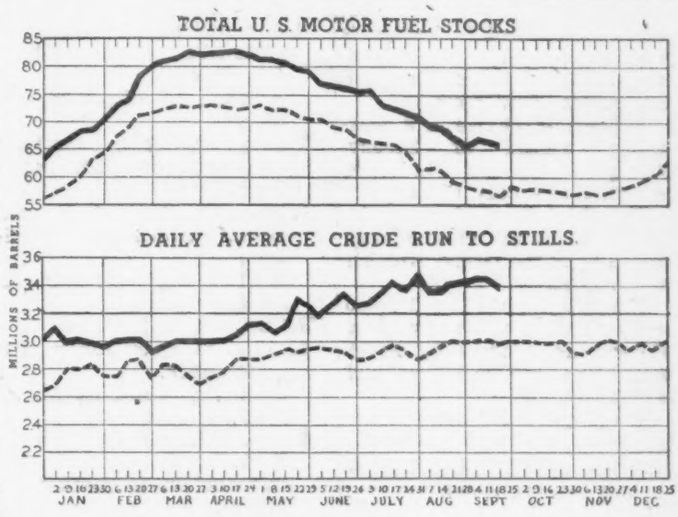
By Teletype
N. P. N. News Bureau

NEW YORK, Sept. 21.—Motor fuel stocks and refinery crude runs kept on the downward trend, while gas and fuel oil stocks rose 1,472,000 barrels, to 112,858,000 barrels, in the week ended Sept. 18, according to the American Petroleum Institute.

Motor fuel stocks declined 379,000 barrels, to 62,487,000 barrels Sept. 18. This followed a decline of 562,000 barrels the previous week. Stocks at refineries Sept. 18 totaled 32,520,000 barrels, a decline of 484,000 barrels. In-transit and terminal stocks totaled 22,860,000 barrels, an increase of 100,000 barrels, and stocks of unfinished gasoline totaled 7,107,000 barrels, an increase of 5000 barrels.

Crude runs to refinery stills declined 56,000 barrels, to a daily average of 3,102,000 barrels. Texas Gulf plants reported the largest decline—one of 32,000 barrels—together with a decline of 4.2 per cent in refinery operations. East Coast plants shut down runs 19,000 barrels, accompanied by a decrease of 2.8 per cent in operations. A decline of 12,000 barrels was also reported in Indiana-Illinois-Kentucky plants. Five other districts reported small increases, while small decreases were reported by two other districts.

Increases in motor fuel stocks were reported in four districts, Appalachian, Texas Gulf, Louisiana Gulf and North Louisiana-Arkansas. Increases were 256,000 barrels in Appalachian, 247,000 barrels in the Texas Gulf, 197,000 barrels in Louisiana Gulf, and 24,000 barrels in Louisiana-Arkansas. The largest decrease of the week was reported in Indiana-Illinois-Kentucky where stocks were lowered 359,000 barrels. California stocks were down 340,000 barrels and East Coast 147,000 barrels.



CURRENT REFINERY OPERATIONS

Districts	Per Cent Capacity Reporting	Daily Average Crude to Stills (Barrels) Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Stocks Thousands of Barrels Total Finished and Unfinished Motor Fuel*		Total Finished and Unfinished Gas & Fuel Oil		Cracked Gasoline Production % Total Capacity Reporting	Daily Av. Production (Barrels) Week Ended	
		Sept. 18	Sept. 11	Sept. 18	Sept. 11	Sept. 18	Sept. 11	Sept. 18	Sept. 11		Sept. 18	Sept. 11
East Coast	100.0	558,000	577,000	83.4	86.2	18,747	18,884	15,236	14,536	100.0	125,000	124,000
Appalachian	88.4	112,000	111,000	86.8	86.0	2,679	2,570	921	898	94.6	27,000	30,000
Ind., Ill., Ky.	92.4	433,000	445,000	88.5	91.0	10,265	10,624	7,233	7,170	98.5	141,000	147,000
Okla., Kans., Mo.	84.7	325,000	327,000	84.9	85.4	6,141	6,179	3,698	3,636	99.3	82,000	83,000
Inland Texas	56.6	142,000	139,000	70.6	69.2	1,693	1,746	1,827	1,824	71.7	40,000	41,000
Texas Gulf	95.5	707,000	739,000	93.4	97.6	7,822	7,575	10,443	10,398	98.0	164,000	178,000
La. Gulf	96.6	158,000	162,000	94.0	96.4	1,986	1,789	3,042	3,115	100.0	33,000	27,000
No. La., Ark.	63.7	47,000	44,000	81.0	75.9	433	409	388	394	77.5	8,000	8,000
Rocky Mt.	69.7	53,000	49,000	85.5	79.0	1,284	1,313	765	774	85.4	15,000	17,000
California	90.9	567,000	565,000	76.0	75.7	11,437	11,777	69,305	68,541	98.0	71,000	70,000
Total Reporting	88.9	3,102,000	3,158,000	84.7	86.2	62,487	62,866	112,858	111,386	94.8	706,000	725,000
Estimated U. S. Total (Bur. of Mines Basis)		3,400,000	3,455,000			66,057	66,456	116,178	114,666		775,000	795,000

*Includes stocks at refineries, in bulk terminals, pipe lines and in transit.

Five-Day Program Listed For Retailers Convention

MILWAUKEE, Wis., Sept. 20.—Final draft of the program for the fifth national convention of the National Assn. of Petroleum Retailers at Rochester, N. Y., Sept. 27 to Oct. 1, inclusive, was announced here by E. Chat. Shanks, secretary.

The convention has been extended to five days in order to avoid crowding of events and formal morning sessions. Open forums will be conducted on an informal basis. Entertainment upon a larger scale than former years has been added, Shanks said.

The outstanding feature of the program will be the School of Marketing. This school was planned by Wilmer R. Schuh, president, and is the result of his observations of the needs of the retailers and their associations under the Dealer Marketing Plan.

Those conducting the school include Dr. Stanley Teele, professor in the Graduate School of Business of Harvard University, specialist in petroleum marketing. Dr. Willard L. Thorpe is director of the division of business law statistics of Dun and Bradstreet, New York.

William E. Gerwe is a marketing official of Socony-Vacuum Oil Co., Inc. J. S. Keller is with Chek-Chart, Chicago.

The chief item of entertainment will be the First Annual Hosellah of the Grand Knights of the Hose.

The banquet will be devoted to installation of directors and officers, an address by President Schuh on "Our Future" and entertainment.

The program follows:

MONDAY, Sept. 27:
- 10:00 a. m. NAPR board meeting, Powers Hotel.
- 1:00 p. m. Luncheon, Powers Hotel.
- 2:00 p. m. Committee meetings at call of chairmen, Powers Hotel.
- 2:00 p. m. Empire State convention, Edgerton Park.
- 2:30 p. m Sight-seeing trips (optional), starting from Powers Hotel.
- 6:00 p. m. Empire State dinner, Edgerton Park.
- 7:30 p. m. Empire State business session, Edgerton Park.

TUESDAY, Sept. 28:
- 10:00 a. m. Open forum, Edgerton Park.
  General subjects. William H. Hartman, chairman.
- 12:30 p. m. Luncheon, formal opening of convention, Edgerton Park.
- 1:30 p. m. School of marketing, Edgerton Park.
  J. S. Keller, Chek-Chart Corp., Chicago.
  William E. Gerwe, Socony-Vacuum, Chicago.
  Sales clinic questions from the floor.
- 4:00 p. m. 1st general session, Edgerton Park.
  Suggestions for committees.
- 4:30 p. m. Committee meetings, Edgerton Park.
- 6:30 p. m. Dinner, Edgerton Park.
- 7:30 p. m. Trade exposition, entertainment.

WEDNESDAY, Sept. 29:
- 9:00 a. m. Sight-seeing trips (optional), starting from Powers Hotel.
- 10:00 a. m. Committee meetings at call of chairmen, Powers Hotel.
- 12:30 a. m. Luncheon, Edgerton Park.
  Trade Laws and Regulations (Marketing School). Dr. Willard L. Thorpe, Dun and Bradstreet, New York.
- 2:00 p. m. 2nd general session. Committee reports.
- 4:00 p. m. Executive session of national commission, Edgerton Park.
  Election of directors and officers.
- 7:30 p. m. Trade exposition and entertainment Edgerton Park.
- 8:00 p. m. Banquet, Powers Hotel, installation of officers.
  Address by Wilmer R. Schuh.

THURSDAY, Sept. 30:
- 10:00 a. m. Open forum, Edgerton Park.
  Marketing subjects, M. E. Holland, chairman.
- 1:00 p. m. Luncheon, Edgerton Park.
  Introduction to marketing. W. M. Boutin, ways and means committee.
- 2:00 p. m. School of marketing, Edgerton Park.
  Dr. Stanley Teele, Harvard University.
- 6:30 p. m. Dinner, Edgerton Park.
- 7:30 p. m. Trade exposition and entertainment, Edgerton Park.
  Auction.
- 10:00 p. m. Initiation of Grand Knights of the Hose, Powers Hotel.
- 11:00 p. m. First annual Hosellah, GKH, Powers Hotel.

FRIDAY, Oct. 1:
- 12:30 p. m. Luncheon, Powers Hotel.
- 1:30 p. m. NAPR board meeting, Powers Hotel.

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The Chemist Waves His Wand

By ARCH L. FOSTER, Technical Editor

If the intensive applications of chemical laws, methods and amount of research, shown in the recent meeting of the American Chemical Society, may be referred to as "wands" the chemists are waving as many of them as the branches of Shakespeare's Birnam Wood coming to Dunsinane. The amount of pure and applied chemical research in petroleum is one of the most heartening phases of the petroleum industry.

Consider for instance Bailey's investigation of nitrogen bases in petroleum. Begun as an A. P. I. project, this work has been continued as a major field of pure research in the University of Texas laboratories under his direction. For its location and the funds accruing to it directly from petroleum no fitter institution exists for the prosecution of this and many other lines of original investigation. Bailey and collaborators first announced the isolation and partial identification of a pyridine derivative, a product with one nitrogen atom in combination with five carbon atoms in a ring structure, in 1931.

Since then many other materials have been isolated, purified and their empirical formulae, atomic percentage compositions determined. Now comes the more monumental task of determining the structure of these molecules, without which information the chemist is sorely handicapped in any attempt to utilize these products for any commercial purpose or product. A master explorer in the fields of synthesis, isolation and proof of structure in organic chemistry, Bailey, along with competent aids, has plunged into the huge task of identifying these products, and others yet to be isolated and purified.

Keep in mind that this nitrogen-in-petroleum field is a virgin one, a mine for the research chemists—and who knows but a mine as well for the industrial chemists and engineer, with as yet un-imagined applications in the civilization of tomorrow. This work, which may appear humble in its beginnings, is giving us the first real information ever obtained on these constituents of crude oil. The possibilities are enormous; the vision of them is the lodestar which keeps the researcher digging away in what the layman calls a musty, odoriferous laboratory, but what the researcher considers the workshop worthy of his efforts. The next ten years will see our knowledge of such materials increased immeasurably.

Heterogeneous Combinations

Consider also the development by A. von Grosse and V. N. Ipatieff, of the UOP laboratories in alkylation of paraffins with olefin hydrocarbons. Really a polymerization or combination of two hydrocarbon molecules, but differing from polymerization in that instead of two unsaturated molecules they combine a saturated with an unsaturated hydrocarbon to produce a saturated molecule by a process of catalysis with, for example, boron fluoride, in a field in which the second author is possibly the greatest known chemist in catalysis, and the first named is fast becoming known.

One immensely important angle of this development is the fact that both saturated and unsaturated hydrocarbons occur, in refinery gases for example. Earlier processes are able to cause chiefly the unsaturates, the olefins, to react, the paraffins passing essentially unchanged through the plant. By such a method both may be brought into combination, adding to the possible yields of very high octane number fuels from these hitherto practically wasted gases, increasing the economy of the refining operation, opening new fields of refining development. These are only two of the great number of new results reported at this meeting at Rochester.

Refining Technology

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Gas "Popping" in Panhandle Negligible in Past Year R-179

Steady production and disposition of gases, elimination of stripping plant operation, and lowering of gas wastage during a year of Railroad Commission control of the Panhandle field, have a stabilizing effect and indicate a brighter future for the area.

"State of the Art" as Seen in the World's Current Technical Literature R-184

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Design principles and advantages of the new types of heaters for modern cracking.

Patent Literature of Today R-198

Salvage Methods Effect Great Savings in Equipment ... by H. Liggett Gray R-200

Heated vats are best for immersing small articles of equipment for cleaning, such as valves, fittings, etc. For pumps, engines, etc., it is economical also to provide vats large enough to immerse the equipment, if any great volume of such work is to be done. When cleaning tanks in the field or plant, the proper solution applied by hand with brushes is the most satisfactory method.

World Average Petroleum Gravities Computed to Improve Statistics R-206

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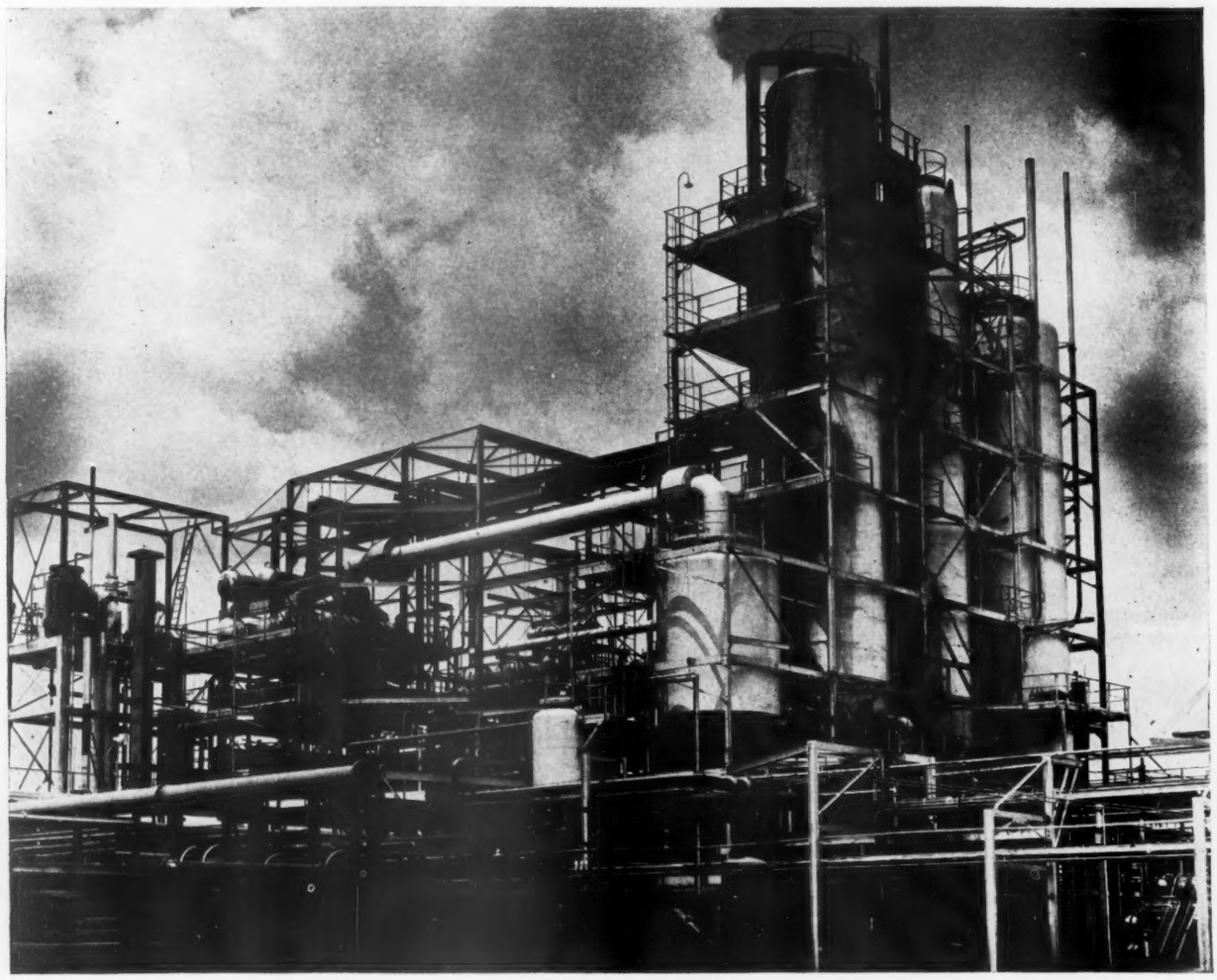
Economic Balance



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Gas "Popping" in Panhandle Negligible in Past Year

By M. G. VAN VOORHIS
N. P. N. Staff Writer

AUSTIN, Texas, Sept. 18

EFFECTS of over a year's operation of the Panhandle oil and gas field under the orders of the Railroad Commission of Texas as provided by House Bill 266 are now shown in the annual report of the commission just issued.

Dropping from a wasted volume approaching 700,000,000 cubic feet of gas blown daily into the air in the fall of 1935, to under 100,000,000 cubic feet daily on the date the commission ordered utilization of available casinghead gas, the trend of wasting gas has been steadily downward except in the first month of enforcement.

Present total production of gas in the Panhandle field is 1,700,000,000 cubic feet daily of which 385,000,000 cubic feet is casinghead. During June, 1937, only 54,367,000 cubic feet of gas was blown daily to the air, roughly half the volume for June, 1936. This represented less than 5 per cent of the total gasoline plant take as compared to 39.7 per cent in January, 1936. By Sept. 1 the volume was to have been cut in half again through a change in disposition in Moore County.

By statute, the total amount of produced casinghead could have been blown to the air in June. Through orders of the commission, together with the intelligent co-operation of operators, however, 86 per cent was conserved and utilized by the industry in sharp contrast to any other field in Texas, the commission states.

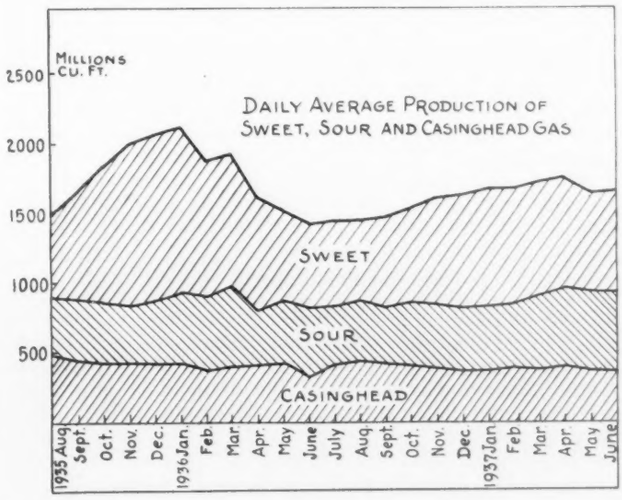
The effect has been to increase efficiency in oil production to the extent that only 4800 cubic feet of casinghead gas were produced per barrel of oil in April this year as compared with 9000 cubic feet in August, 1935.

● The accompanying article is the second to cover actual field experience under the restrictions of the so-called Texas "gas wastage" law. Taken from the annual report of the Railroad Commission of Texas, it does not concern the latest law enactment, Senate Bill 407, on which orders were promulgated by the commission July 6. This bill, passed May 19, 1937, was designed to place further restrictions on sour natural gas production in the Panhandle field. A discussion of the possible effects of this law is contained in an article published in NATIONAL PETROLEUM NEWS, May 19, 1937.

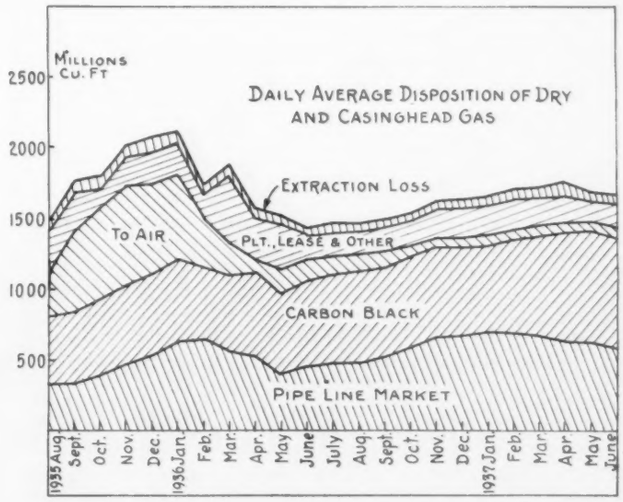
The earlier stages in the progress of the natural gas conservation movement in the Texas Panhandle were discussed in five articles in the issue of April 22, 1936. The then coming re-alignment of natural gasoline plants was described in the light of the action of stripping plant operators in ceasing to vent into the air their residue gas.

It may be recalled that House Bill 266 has a provision for zoning the area into separate proration units. The Panhandle field was divided into two fields because in the eastern part the leasehold and fee ownerships are divided into small tracts while in the western part they are generally larger in size. Also, the pipeline markets of these portions differ. All of the gas in the east zone or field is sweet. The gas in the west zone is both sour and sweet, with sour gas occurring along a belt skirting the north flank of the Panhandle structure.

The east field has the lowest pressure, 284 pounds average, which is close to the critical pressure from a


MILLIONS CU. FT.
2500
2000
1500
1000
500
DAILY AVERAGE PRODUCTION OF SWEET, SOUR AND CASINGHEAD GAS
SWEET
SOUR
CASINGHEAD
1935 Aug Sept Oct. Nov. Dec. 1936 Jan Feb Mar Apr May June July Aug Sept Oct. Nov. Dec 1937 Jan Feb Mar Apr May June

Greatest effect of Railroad Commission regulation of the Panhandle field on production is on sweet gas. The past year shows gradual increases in production to meet consumption demands


MILLIONS CU. FT
2500
2000
1500
1000
500
DAILY AVERAGE DISPOSITION OF DRY AND CASINGHEAD GAS
EXTRACTION LOSS
TO AIR
PLT., LEASE & OTHER
CARBON BLACK
PIPE LINE MARKET
1935 Aug Sept Oct Nov Dec 1936 Jan Feb Mar Apr May June July Aug Sept Oct Nov Dec 1937 Jan Feb Mar Apr May June

One of the most notable features portrayed by charts showing the disposition of gases is that the lines are leveling out to show unbroken consistency which adds faith in the future of the Panhandle. The area representing gas blown to air has been squeezed down to a narrow band which promises to be still narrower

TABLE 1

Daily Average Gasoline Plant Take and Disposition; Pipeline Market August, 1935 — June, 1937 Inclusive

Date	Total Gas Produced	Take	Extraction Loss	Plant & Lease	Carbon	Repressure and Gas Lift	Ind. and Domestic	To Air	Pipeline
1935									
August	1,487,347	995,696	57,397	118,485	484,963	.....	35,208	299,623	325,108
September	1,677,518	1,321,474	70,617	115,819	514,511	.....	45,796	573,596	329,305
October	1,835,806	1,461,824	88,637	145,181	524,505	.....	46,294	657,207	398,325
November	2,016,720	1,542,878	91,598	151,780	555,067	.....	50,616	693,817	478,914
December	2,081,215	1,536,389	90,338	146,657	593,686	.....	59,384	646,324	528,533
1936									
January	2,132,074	1,518,825	88,143	174,209	591,965	.....	61,782	602,726	625,520
February	1,786,287	1,194,879	69,998	153,330	542,867	.....	84,219	344,465	640,023
March	1,824,209	1,071,914	66,704	147,552	542,605	789	80,755	233,509	564,590
April	1,601,034	933,642	63,304	139,659	572,785	1,045	61,725	95,124	542,709
May	1,508,810	978,183	49,698	133,773	585,427	1,167	60,769	147,349	395,805
June	1,433,374	989,639	53,022	118,165	605,220	824	66,221	146,127	463,569
July	1,471,773	1,005,319	53,232	136,633	635,564	2,359	59,884	117,647	486,333
August	1,467,027	1,018,050	53,830	136,224	659,497	1,099	57,058	110,342	482,336
September	1,495,816	995,400	52,927	135,859	652,380	976	54,557	98,701	508,902
October	1,567,081	983,112	55,114	141,870	654,526	2,135	50,575	78,892	596,677
November	1,639,227	989,924	58,460	123,778	646,697	15,334	67,343	78,312	661,201
December	1,659,480	995,982	57,642	150,299	632,908	18,305	64,683	72,145	669,357
1937									
January	1,679,972	1,000,573	58,075	157,367	639,303	25,882	56,313	65,276	704,293
February	1,715,498	1,025,670	60,902	167,901	652,944	21,130	48,486	74,307	699,659
March	1,726,873	1,047,350	58,650	146,863	703,197	10,696	62,960	64,984	684,769
April	1,757,099	1,109,444	67,492	149,045	761,291	5,115	54,777	71,724	647,138
May	1,690,127	1,088,570	56,129	130,130	791,429	4,408	54,920	51,554	635,272
June	1,703,094	1,104,250	53,516	126,836	814,661	5,746	49,124	54,367	581,787

pipeline standpoint. Booster stations will soon make their appearance in the field if the present demand is maintained. Pressure two years ago was 313 pounds. Casinghead gas production has averaged over 140,000,000 cubic feet daily, over two thirds coming from the Kellerville area. In July, 1937, there were 393 wells with a daily potential of 6,802,370,000 cubic feet as compared to 347 wells with a potential of 7,151,308,000 cubic feet in July, 1935.

The west field has 624 wells in July, 1937, with a potential of 10,153,657,000 cubic feet. The weighted average pressure was 370 pounds as compared to 379 pounds two years ago. Increase in field potential in the two years was 1,349,562,000 cubic feet through the addition of 87 wells.

TABLE 2

Daily Average Production of Sweet, Sour, and Casinghead Gas in the Panhandle, By Fields August, 1935—June, 1937, Inclusive

Date	Sweet	Sour	Total Dry Gas	Casinghead Gas	Total Gas
1935					
August	597,542	407,662	1,005,114	482,233	1,487,347
Sept.	786,816	444,134	1,230,950	446,568	1,677,518
Oct.	1,055,564	352,553	1,408,118	427,688	1,835,806
Nov.	1,168,483	404,341	1,572,824	443,896	2,016,720
Dec.	1,191,019	453,198	1,644,217	436,998	2,081,215
1936					
Jan.	1,174,413	521,349	1,695,762	436,312	2,132,074
Feb.	868,512	564,746	1,433,258	353,029	1,786,287
March	944,527	578,657	1,428,230	395,979	1,824,209
April	798,153	383,695	1,181,848	419,186	1,601,034
May	635,849	446,000	1,081,849	426,961	1,508,810
June	571,546	430,027	1,001,573	431,801	1,433,374
July	603,600	429,640	1,033,240	438,533	1,471,773
August	577,906	434,062	1,011,968	455,059	1,467,027
Sept.	630,874	437,164	1,068,038	427,778	1,495,816
Oct.	709,906	445,759	1,155,665	411,416	1,567,081
Nov.	772,889	462,403	1,235,292	403,935	1,639,227
Dec.	804,779	463,010	1,267,809	391,671	1,659,480
1937					
Jan.	828,122	470,101	1,298,223	381,749	1,679,972
Feb.	818,667	496,754	1,315,421	400,007	1,715,498
March	800,380	534,995	1,335,375	391,498	1,726,873
April	781,471	568,775	1,350,246	406,853	1,757,099
May	721,429	573,235	1,294,664	395,463	1,690,127
June	729,102	588,277	1,317,379	385,715	1,703,094

TABLE 3

Refinery Operations of the Panhandle District
(Eight Refineries)

Date	Runs of Crude to Stills	Yields of Naphtha & Gasoline	Yields of Refined Oil Kerosine	Yields of Gas, Heating & Fuel Oils
1937				
Jan.	991,008	507,604	21,251	243,706
Feb.	1,038,675	612,999	36,255	234,264
March	1,189,787	694,679	44,553	271,908
April	1,104,248	631,114	37,154	246,651
May	1,158,040	657,883	47,392	273,571
June	1,175,521	658,931	44,747	231,358

The increasing demand for carbon black has "boomed" the sour gas area. The 225 wells here in June, 1935, jumped to 357 wells in two years and a heavy drilling campaign is still under way. The potential of this field has increased from 2,651,465,000 cubic feet in 1935 to 6,918,229,000 cubic feet in July, 1937. Present average pressure of 345 pounds is 14.5 pounds lower than two years ago.

The entire Panhandle field had 1109 wells in July, 1935, and a potential of 18,606,868,000 cubic feet. Two years brought an increase to 1374 wells with a potential of 22,990,282,000 cubic feet.

Production Is Stabilized

Stripping was still the common production practice in 1935 and continued during the first two months of 1936. Since that time production has been held to demand levels. No wide fluctuations in production have occurred since stripping ended and the commission has been in charge. Production figures are shown in an accompanying table and chart. No estimates were used since all gas of importance is metered and reports are submitted under oath.

An ideal situation has finally been reached, according to the commission. Operators are no longer asked the volume of gas they are "popping" to the air just to recover the gasoline, but are asked the minimum amount of gas necessary to release at each plant in order that an uninterrupted residue sale may be maintained. The improvement in this one phase of operation is said to have prolonged the life of the field many years and will mean an ultimate recovery that could not have been expected otherwise. One of the notable features portrayed by charts showing the disposition of gases is that the lines are leveling out to show unbroken consistency which adds faith in the future of the Panhandle, it is indicated.

Development Speeds Up

Oil development has been accelerated during the past 11 months, the commission reports. The field has an added 493 new wells with an aggregate potential of 234,950 barrels. Even though the Panhandle is a comparatively old field, there were 200 wells being drilled there in August. The average well has a daily producing capacity of 296.7 barrels and the per well allowable averages 24.4 barrels, giving a field allowable of 81,400 barrels daily.

Oil production, under proration, has steadily increased in the field and has now reached a level of over 2,250,000 barrels per month as compared with 1,660,000 barrels in

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August, 1935. Gasoline yield is 58 per cent. Over a million barrels of this oil are being refined monthly by eight refineries located in the immediate area. To date the field has produced in excess of 290,000,000 barrels of oil. Some geologists predict an ultimate recovery of 1,000,000,000 barrels. Yields of refineries include naphtha, kerosine, and gas oils as shown by the accompanying table for the first six months of 1937.

The commission report goes into considerably more detail in its 40 pages. It opens with a description of the field, its development since 1918, a summary of legislation, gives reasons for the establishment of zones in the field as provided in 1935 by House Bill 266, and presents short discussions of each of the subdivisions.

One of the most important properties, pressure distribution, is mapped with color areas using 50-pound pressure isobars. Of the total acreage, 39.2 per cent is still above 400 pounds per square inch and 25.8 per cent ranges between 350 and 399 pounds. Virgin pressures did not exceed 430 pounds.

The line of demarkation between the sweet and sour gas areas has changed slightly from its position in January, 1937. This was shown by the results of tests for the hydrogen sulfide and mercaptan content of 122 gas wells in the Panhandle field (fifth survey). This was believed to be caused by local withdrawal conditions in particular sections of the field. The line is still sharp, however.

The enactment of Senate Bill 407, concerned with the possibility of sweet gas migrating from its normal district into the sour gas fields, particularly in Moore county, is given but brief mention in this year's report in-as-much-as it did not become law until May 20 and the Commission's order effectuating the provisions of this statute was not promulgated until July 6.

Catalog Oil-Burning Steam Vessels

WASHINGTON, Sept. 18.—Oilburning steam vessels of over 500 gross tons have been separately listed by the Bureau of Marine Inspection and Navigation of the U. S. Department of Commerce. The list is for seagoing vessels of the U. S. as of May 1, 1937. The list is to be revised periodically. The first revision was issued this month.

Vessels are arranged in order of home ports, starting with Portland, Me., and continuing around the Atlantic, Gulf, and Pacific coasts. Five vessels are listed on the Great Lakes. Data in the table include gross tonnage, deadweight, speed, tankage capacity in gallons if the vessel is a tanker, bunker capacity, cruising radius, and class of service.

One of the intended uses of the table is to define the market for bunker oil, according to C. F. Mayne, chief of publications and statistics at the bureau. Copies will be furnished upon request to the bureau in Washington. If there is sufficient demand, such a table will be published periodically, Mr. Mayne stated.

Oil Production Featured At Two A.I.M.E. Meets

Petroleum Division of the American Institute of Mining and Metallurgical Engineers has scheduled two western meetings this Fall, one at Los Angeles, Oct. 1, and the other at Oklahoma City, Oct. 7-8.

Two papers, already submitted to Ernest K. Parks, program committee chairman for the Los Angeles meeting, are: Technical Publication 845, "Effect of Pressure Upon the Viscosity of Air, Methane, and Two Natural Gases", by B. H. Sage and W. M. Lacey; and "Flow Equilibria of Two Immiscible Liquids in Unconsolidated Sands", by E. N. Dunlap.

A tentative list of papers has been prepared for the Oklahoma City meeting all dealing with production problems.

Debate Diesel vs. Gasoline Engine Applications

NEW YORK, Sept. 18.—Two Oklahoma colleges will debate "The Diesel Engine vs. the Gasoline Engine for Automotive Applications" as a novel feature topping off the National Regional Fuels and Lubricants meeting of the Society of Automotive Enginers at Tulsa, Sept. 30 and Oct. 1.

Diesel fuels and gasoline, engine cooling, transportation and maintenance problems, aircraft and other subjects are included in the two-day forum, according to J. A. C. Warner, secretary and general manager of the society.

B. E. Sibley, Continental Oil Co., as general chairman of the meeting, is working with S.A.E. Vice President C. H. Baxley, International Aviation Associates, who represents the society's Fuels and Lubricants Activity, sponsors of this event.

Opening the technical program, C. L. Cummins, Cummins Engine Co. will speak on "The Development of the Diesel Around Oil Country Problems". He will be followed by A. F. Campbell, Waukesha Motor Co., with the subject, "Economic Place of Automotive Oil Engines".

The afternoon program includes "Oil Field Operations" and "Evolution of Bus Maintenance Practice". The former will be by A. W. Herrington, Marmon-Herrington Co., and the latter by Floyd Patras, Southwestern Greyhound Lines.

Oil company representatives, H. M. Trimble and R. C. Alden, Phillips Petroleum Co., and Robert Best, Continental Oil Co., fill the second morning program. "Gasoline Volatility" and "Diesel Fuels" are their respective subjects.

"Engine Cooling Problems", by F. M. Young, Young Radiator Co., and "Bringing the Private Owner Airplane Up to Date", by Mac Short, Los Angeles, make up the afternoon program. The student debate is scheduled with the closing dinner in the evening.

They are all in the natural gasoline business. Left to right—W. H. Kiley, of Houston, general superintendent of terminals for Warren Petroleum Co.; W. K. Warren, president of the company bearing his name; Fred Koopman of the Phillips Petroleum Co., Bartlesville William Clute of the Sinclair-Prairie Oil & Gas Co., Tulsa

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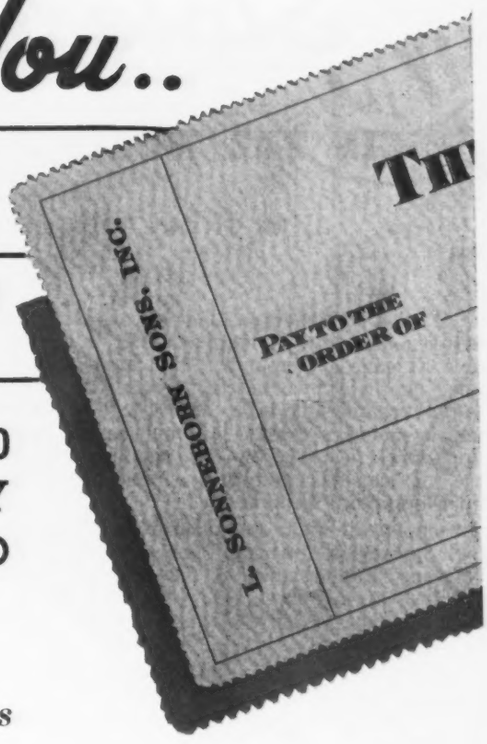

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"State of the Art" AS SEEN IN THE WORLD'S CURRENT TECHNICAL LITERATURE

By M. G. VAN VOORHIS

THERE is nothing a workman likes better than better tools to work with, whether it be an axe that will hold its edge longer or a complicated machine producing a finer quality of workmanship. The latter has an analogy in the research laboratory. In oil industry laboratories these improvements are made in small scale apparatus for fractionation, cracking, analysis, testing, and the like, which are all tools for bettering commercial processes, and in turn, improving products.

One of the main difficulties with laboratory stills is that their principal dimension has been "up." With a newly developed bubble tower a 100-plate still need not suggest openings through ceilings. The still has been folded up into a height of only 6.5 feet and has other advantages, its designers say.

Working toward simplicity and low costs, other chemical engineers have developed an apparatus for distillation which can be made from standard laboratory equipment. The apparatus can be used for solvent recovery too. Solvent extraction is now being done in one laboratory in a 15-foot tower with close control and sufficient satisfaction to warrant duplication of the apparatus.

In recent literature aniline point is being extolled and a method described to extend its use to opaque oils with greater convenience. Another means of analysis, the relationship of molecular weights to viscosities, has been extended to wider boiling range and wider different viscosity-temperature characteristics. From entirely outside the petroleum industry comes an offering of an improved apparatus for determining low vapor pressures (0.001 to 4.0 mm.)

* * *

Laboratory Bubble Tower

New 100-plate still can be used in any laboratory. J. H. Bruun and W. B. Mason Faulconer. Ind. Eng. Chem., Anal. Ed., April 15, 1937, *p.* 192.

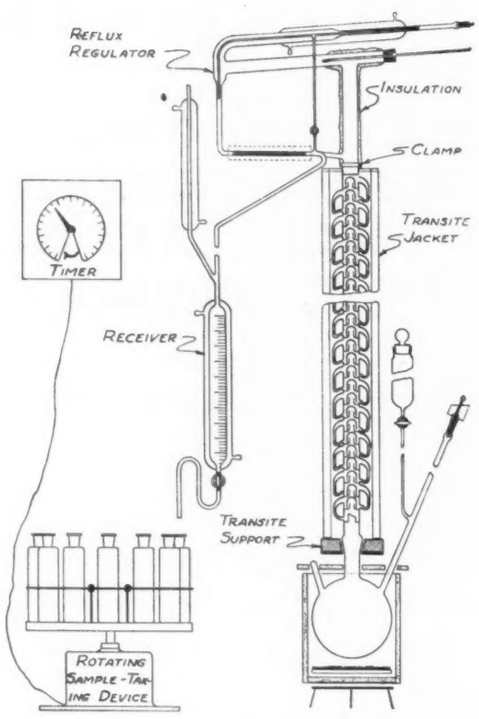
A 100-plate still only 6.5 feet tall and having a separating power equivalent to about 70 theoretical plates has been designed. The plates are of a new type.

The column, which is made in 20-mm. sections, has a total holdup of about 70 cc. The heating jacket, of greatly improved design, is made of sheet transite with a glass front and is surrounded on three sides by insulating material. An automatic sample-taking device has been provided also to reduce attention required to a minimum.

The time required to start up the column is about 20 to 30 minutes from the time of boiling in the still pot. For most distillations it is advisable to set the reflux regulator for total reflux and to allow the column to operate in this manner for from two to six hours in order to insure equilibrium on all plates.

By using the automatic sample-taking device, the still, when once started and properly adjusted, requires no attention. It has been the practice to leave the still running at low rates of boiling (10 cc. per minute at the top of the column and 0.1 to 0.5 cc. per minute collecting in the receiver) at night and over Sunday. The low rates of distillation are more than compensated for by the 168 hours per week of actual distillation time available.

When shutdown is necessary during an uncompleted distillation, the still has the advantage of being non-siphoning—that is, the already fractionated portions of the liquid will remain on their respective plates. When the still is to be restarted, equilibrium has already been established, thus saving from two to six hours at every shutdown.



Specially designed plates make possible this 100-plate still which is only 6.5 feet high

Efficiency curves indicate compounds boiling only a few degrees apart, such as benzene and ethylene chloride, can be separated in the 100-plate still. Results of tests showed the number of theoretical plates in the new column is 70 to 72. This corresponds to a height of about 2.8 cm. for an equivalent theoretical plate.

The maximum permissible vapor velocity for the column is one foot per second, which corresponds to a boiling rate of about 30 cc. of benzene per minute.

* * *

Laboratory Distillation Unit

A simple, inexpensive combination atmospheric distillation and vacuum flash unit can be made of standard laboratory equipment. C. E. Winters and J. E. Hedrick, Ind. Eng. Chem., Anal. Ed., April 15, 1937, *page* 189.

To satisfy a need for a simple, inexpensive apparatus for distillation of petroleum which can be quickly assembled and dismantled, a combination atmospheric distillation and vacuum flash unit is described. The apparatus can be used for solvent recovery also. Made of standard laboratory

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equipment and having a capacity of about a gallon per hour, it gives sharp cuts and can be run continuously.

An outfit which was built consisted of two distillation setups, each using 5 liter flasks for distilling and connected by a single piece of 0.4-cm. copper tubing. One flask operated at atmospheric pressure and 350-600° F.; the other at 8-mm. vacuum or less and 300-550° F. Thermocouples were found better than thermometers.

Crude is fed to the atmospheric still, which serves to preheat the oils for vacuum flashing and removes the gasoline and water. The hot bottoms from the topping still are drawn into the vacuum still, being sprayed at high velocity. When operated strictly as a flash unit, there is no difficulty with foaming and entrainment as in ordinary vacuum distillation. If flashing does not remove enough material, a small amount of heat can be applied, making the one flask severe as both a flash chamber and distillation unit.

* * *

Laboratory Solvent Extraction

A 15-foot glass, continuous-extraction tower unit for experimental work. Herschel G. Smith, Nat Pet. News, June 23, 1937, page 46.

Based on experience with a 5-foot tower, a 15-foot glass tower was designed which provided full control of all operating variables. Regular 5-foot lengths of standard pyrex tubing are used for three flanged sections made tight on ground ends by pulling up on threaded-through rods. The inside diameter is 1 13/16 inches. To avoid strains and breakage a vertical chassis was built with supporting arms held up by springs.

For the jackets for tower temperature control, each of the three sections is supplied with a three-way valve and the thermometer well. The temperature of the circulating liquid for temperature control can be read and any jacket can be partly or wholly by-passed when desired.

The extract layer is drawn out through a n-trap with top vent, the elevation of which is made adjustable with a clamp support. The trap is connected with the bottom of the tower by flexible tubing.

Normally, under best conditions, there is a level at which the direction of flow of liquids appears to reverse itself due to change of phase. Below this level the upwardly rising oil droplets are visible and above, the downwardly-moving droplets of mixture of solvent and extracted material. By adjusting the n-outlet by a movable clamp the desired level for the place trading effect can be accurately fixed.

Any solvent can be employed if its separating rate is sufficiently rapid to permit operation at reasonable capacity. Operation is by trap flow control with no valves in the system other than the check valves of the charging pumps which are of the adjustable proportioning type.

* * *

Aniline Point

Aniline points are revised and distinguished from critical solution temperatures. E. B. Evans. J. Inst. Pet. Tech., March, 1937, p. 220.

Aniline points, the temperature of miscibility of equal volumes of aniline and a hydrocarbon, should take the place of critical solution temperature (C.S.T.) as a method of analysis of hydrocarbon mixtures. Confusion now exists between the two terms. Analysis of gasoline by the aniline point method was put on a satisfactory basis by F. H. Garner, whose results are in good agreement with data presented in the accompanying table.

Principal sources of error in determination of aniline point are insufficient care in obtaining pure compounds and impure aniline. There is no difficulty in obtaining pure aniline if a good quality material be dried for 24 hours over stick potash or quicklime, separated and distilled, rejecting a generous proportion of fore-runnings and tails, suitable precautions being taken to prevent the absorption of moisture during the distillation.

The Aniline Points of Pure Hydrocarbons

Hydrocarbon	Aniline Point in ° C.
Paraffins	
n-Pentane	70·7
*iso*Pentane	75·7
n-Hexane	68·6[5]
n-Heptane	69·4
2-Methylhexane	74·0[7]
3-Methylhexane	70·0[7]
3-Ethylpentane	65·7[7]
2 : 2-Dimethylpentane	77·6[7]
2 : 3-Dimethylpentane	67·7[7]
2 : 4-Dimethylpentane	78·8[7]
3 :3-Dimethylpentane	70·5[7]
2 : 2 : 3-Trimethylbutane	72·2[7]
n-Octane	71·7[5]
2 : 2 : 4-Trimethylpentane	79·5
n-Nonane	74·4[5]
n-Decane	77·5[5]
n-Undecane	80·6[5]
n-Dodecane	83·5
n-Hexadecane	95·1
Olefines	
Pentene-1	19·0
Pentene-2	18·3
Trimethylethylene	12·8
Hexene-1	22·8
Hexene-2	26·0
Heptene-1	27·2
Octene-1	32·5
Diisobutylene	42·8
Nonene-1	38·0
Hexadecene-1	72·4

Hydrocarbon	Aniline Point in ° C.
cycloPentanes	
*cyclo*Pentane	16·8
Methyl*cyclo*pentane	33·0
Ethyl*cyclo*pentane	36·7
1 : 3-Dimethyl*cyclo*pentane	46·4
n-Propyl*cyclo*pentane	44·5
n-Butyl*cyclo*pentane	48·7
cycloHexanes	
*cyclo*Hexane	29·9
Methyl*cyclo*hexane	39·5
Ethyl*cyclo*hexane	43·8
o-Dimethyl*cyclo*hexane	43·3
m-Dimethyl*cyclo*hexane	47·8
p-Dimethyl*cyclo*hexane	47·8
n-Propyl*cyclo*hexane	49·8
n-Butyl*cyclo*hexane	54·4
1 : 3 : 5-Trimethyl*cyclo*hexane	55·5[11]
Hexamethyl*cyclo*hexane	65·5[11]
Cyclic Olefines	
*cyclo*Pentene	Below—10·0
Methyl*cyclo*pentene	— 7·0
Ethyl*cyclo*pentene	1·2
n-Propyl*cyclo*pentene	14·2
n-Butyl*cyclo*pentene	25·0
*cyclo*Hexene	Below—20·0
Bicyclic Naphthenes	
Decahydronaphthalene	35·3
Di*cyclo*pentyl	35·8
*cyclo*Hexyl*cyclo*pentane	42·5
Di*cyclo*hexyl	42·5
Di*cyclo*hexylethane	61·0

[5]Results converted from Shepard, Henne and Midgley.

[7]Results converted from Edgar and Calingaert.

[11]Results from Waterman, Dros and Tulleners.

Viscosity-temperature curves show aniline point of opaque oils. Leon Donn, Ind. Eng. Chem., Anal. Ed., May 15, 1937, p. 202.

If a solution of oil and aniline is cooled from a temperature above that where true solution holds the viscosity increases with decreasing temperature until the solution begins to separate and an emulsion-like mass, momentarily formed, causes a sharp increase in viscosity. This sharp peak corresponds to the aniline point obtained by visual methods. As the temperature continues to fall the high viscosity peak is accentuated by a decrease in viscosity as the particles of components grow in size and the emulsion no longer holds.

The Ostwald viscometer and the viscosity tube holding the mixture is heated in a suitable bath and agitated by bubbling during the process. Cooling takes place in the bath very slowly so that as many viscosity readings as possible can be recorded.

The approximate temperature of complete solution may be determined by a micromethod. A drop of hot solution is rapidly transferred to a hot but gradually cooling micro-

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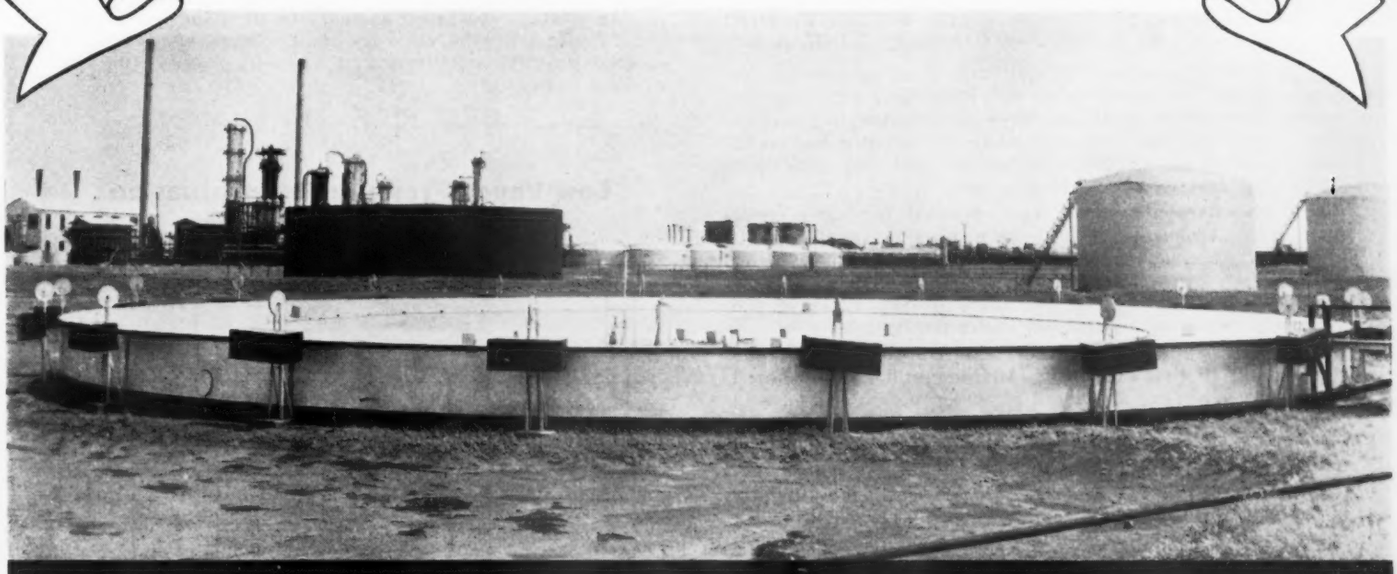
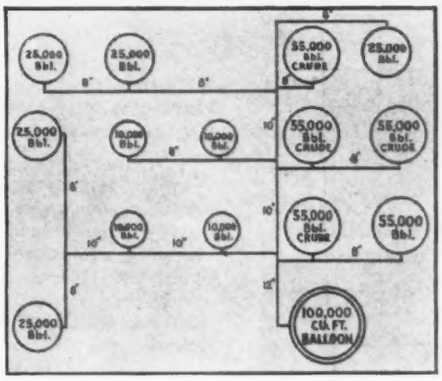


THE WIGGINS BALLOON

IN selecting and making use of plant equipment, almost every refinery is faced with the problem of how to retain a maximum of flexibility and still operate efficiently. This is particularly true in the case of miscellaneous tanks which may be used for a variety of purposes at, perhaps, irregular intervals.

Such tanks too often provide no protection against evaporation loss despite the fact that the light, easily lost fractions are steadily becoming more valuable. Individually, the loss may seem insufficient to justify protective measures, but collectively, it is a serious matter.

It is for just such cases that the Wiggins Balloon Vapor Saving System now offers a remarkably economical and practical solution. How it works in refinery service is well illustrated by the installation pictured above in the McPherson, Kansas, refinery of the Globe Oil & Refining Co.



This balloon is a 100,000 cu. ft. capacity unit which has been in service four years. The diagram indicates how a network of piping connects the vapor spaces of fourteen miscellaneous working tanks with the Balloon. Tanks not otherwise marked are all finished gasoline tanks, including straight run, cracked, and leaded gasolines.

Despite the fact that no more than ordinary effort is made to balance in- and out-pumping, or to otherwise favor the Balloon, Mr. E. J. Mary, Superintendent of the refinery, reports that during the first twenty-four weeks of this year no vapor whatever had been vented by the Balloon and that, even in hottest weather, the Balloon has never vented more than once a week.

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Chicago	2125 Old Colony Bldg.	Detroit	1513 Lafayette Bldg.	Tulsa	1607 Hunt Bldg.
New York	3345—165 Broadway Bldg.	Dallas	1439 Liberty Bank Bldg.	San Francisco	1060 Rialto Bldg.
Philadelphia	1614—1700 Walnut Street Bldg.	Birmingham	1534 N. Fiftieth Street	Los Angeles	1422 Wm. Fox Bldg.

scope warming stage equipped with a thermometer, and promptly covered with a cover glass. Observation through the microscope of the thin film produced by the drop between the two glasses showed the aniline point by the change in appearance of the film.

* * *

Molecular Weights

Molecular weights of distillate fractions are determined on a chart from viscosities at 100° *F. and* 210° *F. J. R. Keith and L. C. Roess, Ind. Eng. Chem., April* 1937, *p.* 460.

Molecular weights of distillate fractions from two crudes with a relatively large difference between their viscosity-temperature relations were determined by a cryoscopic method. The data were analyzed to show the direct relation between viscosity at 100° F. and the molecular weight for fractions from each source.

A characteristic curve was obtained for each crude by plotting molecular weight against viscosity at 100° F., and the difference between the molecular weight-viscosity relations of samples from these two sources was used as the basis for establishing the effect of the slope of the viscosity-temperature curve on molecular weight.

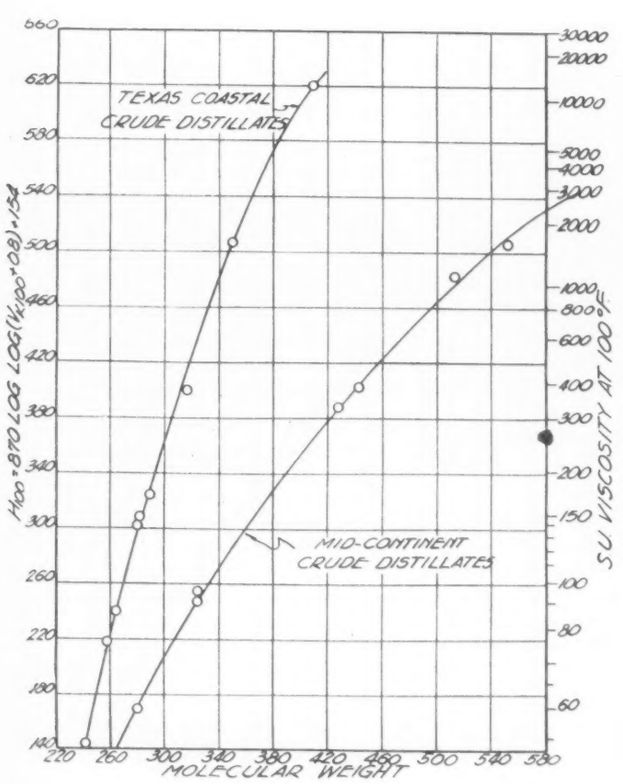
The investigation was undertaken to obtain a correlation similar to that of Fenske, McCluer and Cannon based on fractions having a somewhat wider boiling range and widely different viscosity-temperature characteristics. The viscosity slope factor for a Mid-Continent distillate was 249 and for a Texas coastal distillate, 302.

Molecular weight data were plotted against a function of viscosity [$H_{100} = 870 \log \log (V_{k100} + 0.8) + 154$], with viscosity also shown for convenience. A smooth curve was drawn through the data for each set of samples, but the two lines were far apart indicating a considerable difference in the molecular-weight-viscosity relations for the two types of stocks. Viscosity slope factor was introduced therefore to account for this deviation. Previous investigation had indicated that viscosity slope factor varied linearly with molecular weight, provided the viscosity at any one temperature were constant, as is the case for the above curves.

The construction of the accompanying chart was through a general correlation from data for the above mentioned curves by calculating the position of diagonal lines of constant viscosity at 210° F. A very rough estimate of the probable error of values obtained from the chart is about ±3% which was thought to be greater accuracy than by the formula developed by Fenske, McCluer, and Cannon in 1934.

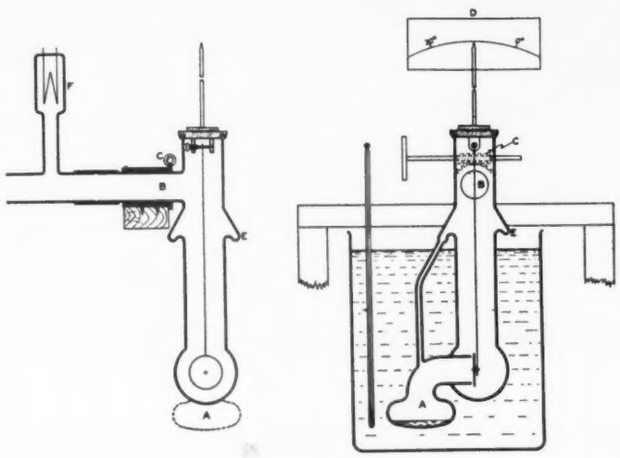
An attempt was made to correlate all of these molecular weight data with the viscosity at one temperature and the specific gravity, substituting a viscosity-gravity function, without success.

* * *


TEXAS COASTAL CRUDE DISTILLATES
MID-CONTINENT CRUDE DISTILLATES
MOLECULAR WEIGHT
SU VISCOSITY AT 100°F
H100 = 870 LOG LOG (V100+0.8) + 154

Relation of molecular weights to viscosity at 100° F. on distillate fractions of widely different viscosity-temperature characteristics is shown by the above chart

Low Vapor Pressure Determination



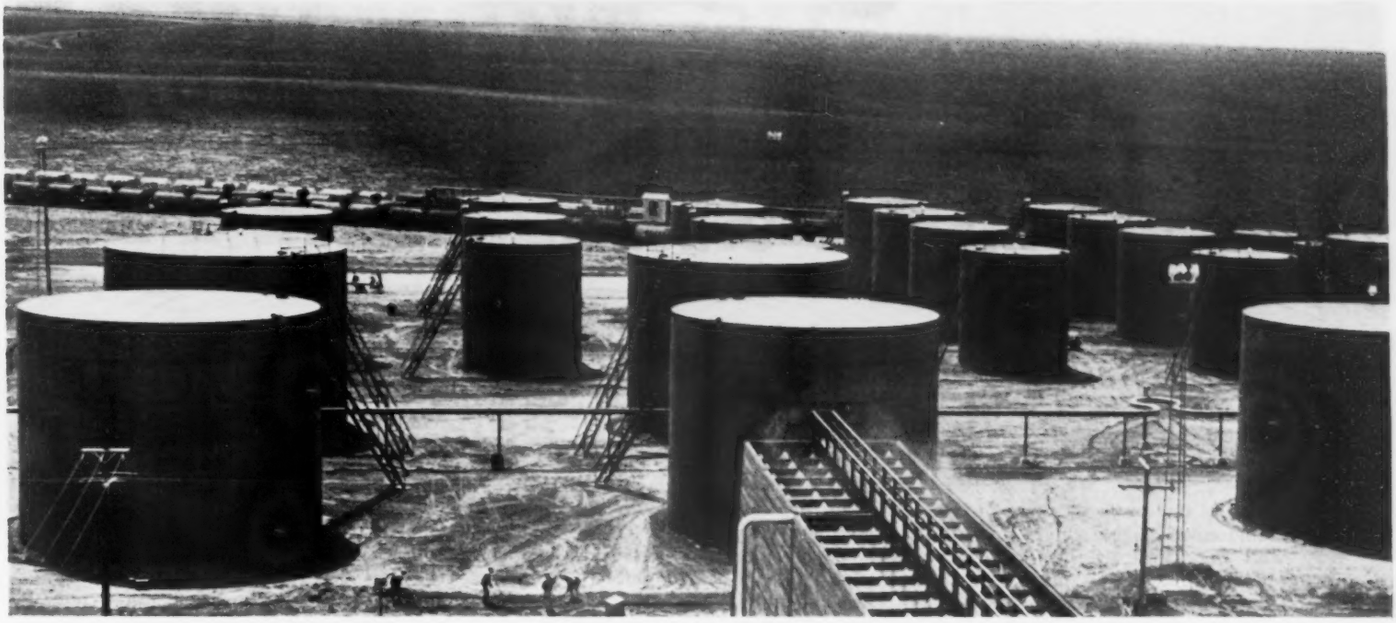
Vapor pressures as low as 0.001 mm. are measurable with improved accuracy by this recently developed apparatus

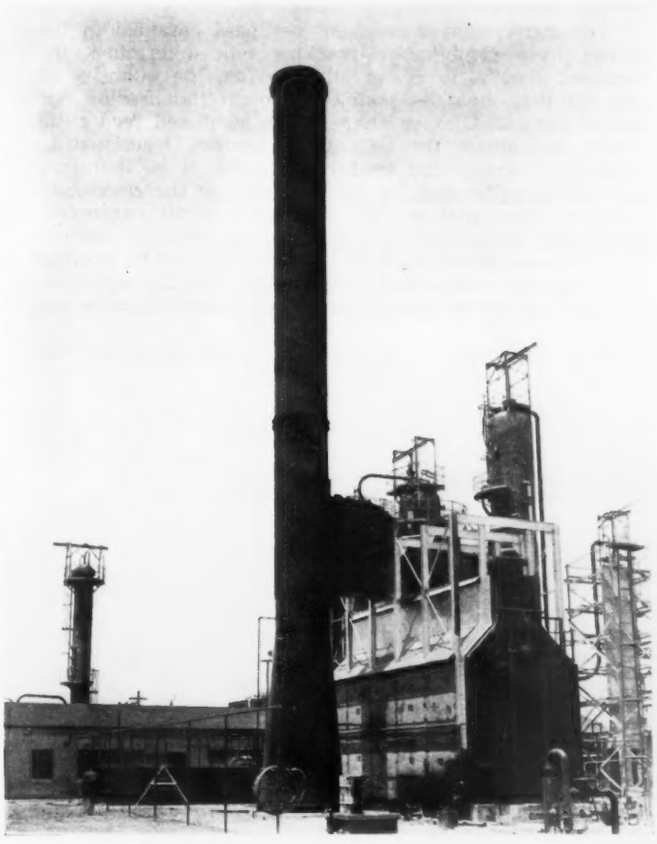
A new apparatus increases the accuracy of low vapor pressure determination. K. C. D. Hickman, J. C. Hecker, and N. D. Embree, Ind. Eng. Chem., Anal. Ed., June 15, 1937.

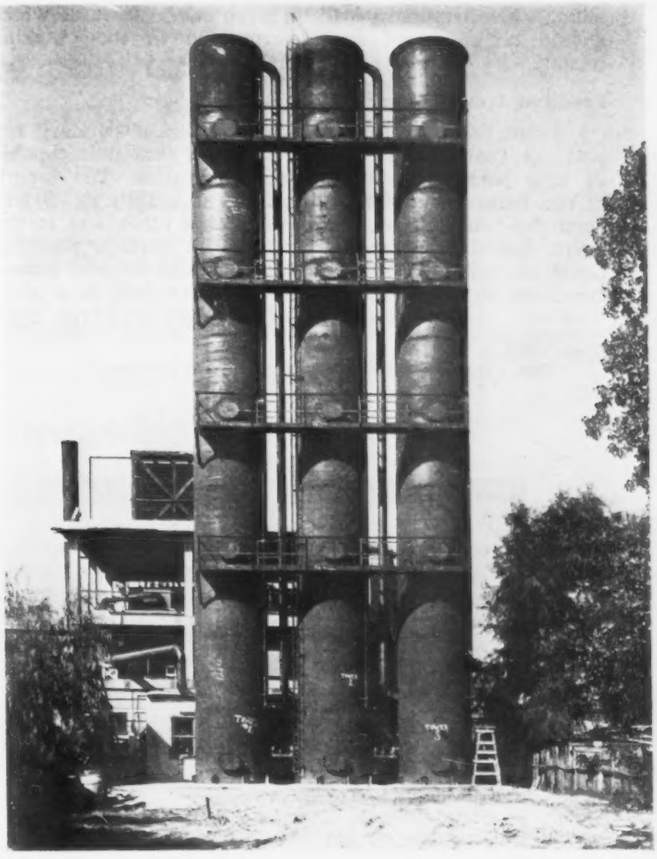
Direct determination of low vapor pressures in the range 0.001 to 4.0 mm. has been improved in a new apparatus developed in Eastman Kodak Co. laboratories. The older tensimeter-hypsometer fails to work at low pressure because of inter-diffusion between vapor and the residual gas, and because the random velocity is small compared with the forward velocity of the vapor molecules. Both defects could be cured by placing a flexible diaphragm across the junction between the boiler and condenser but this is impracticable.

In the new apparatus a substitute has been evolved for the diaphragm. A disk forming the end of a long, lightweight pendulum swings to close the orifice of the boiler, A, shown in the accompanying figure. A large side tube, B, connected to a condensation pump and to a mechanical oil pump can be rotated along with the tensimeter by the gear wheels, C, and a pointer records the angular deflection on a scale, D. The apparatus is tilted so that the pendulum just closes the orifice of the boiler. The temperature is raised by means of an oil bath until the vapor from A blows the pendulum bob away. The tensimeter is twisted until the pendulum closes the orifice again. By comparing the position at low temperature with that at high, the deflection produced by the pressure of the vapor when no vapor is flowing, is readily deducible.

The annulus, E, collects condensate and returns it by a narrow tube to the boiler, A. This tube also provides a slight vapor leakage but can be closed with an iron ball and the pressures read. A magnet is used to remove the ball when readings are taken with the tube open.







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Types of Cracking Operations In Modern Cracking Plants*

In two parts; Part 2

By E. R. SMOLEY, VALENTINE MEKLER, and A. H. SCHUTTE**

THE heater is the heart of the cracking process. The performance of this single unit of the equipment may very well constitute the difference between a superior and a mediocre cracking plant. The increased knowledge of the basic principles of cracking such as soaking time, vaporization, rate of cracking, heat of reaction and conversion per pass, has made accurate heater design possible. A brief summary will be given of the features which should be combined and co-ordinated in the cracking heater.

Freedom from Coking

From the operating standpoint it is of primary importance that the heater be so designed that it is capable of long periods of uninterrupted operation. The length of run before a necessary shutdown is usually dependent upon the rate of coke formation in the tubes and in the heater outlet transfer lines. Since the modern cracking plant represents a relatively high initial capital investment and since the mechanical work involved in a shutdown for cleaning out the unit is costly, a high service factor or total percentage time on stream is of great economic importance. It follows therefore that whatever may be done to increase the crack per pass or decrease the tube surface required for a given cracking duty must not be done at a sacrifice of length of run.

Conversion Per Pass

The conversion or cracking per pass obtained in the heaters of a combination cracking unit determines the combined feed ratio or, in other words, the quantity of material that must be pumped through the heaters per unit of fresh feed stock charge. The combined feed ratio in turn determines the size of the heaters, fractionating equipment, pumps and heat exchangers. It is therefore essential that the heaters be designed for the maximum crack per pass that can be obtained without encountering coking difficulties. This requires an accurate knowledge of the nature of the feed stock with regard to original source, boiling range and refractivity, and the optimum conditions of temperature, pressure and soaking time required.

It is important to the cracking plant operator that

*Original title, "Combination Selective Cracking," World Pet. Cong., 1937.

**The Lummus Company—New York and London.

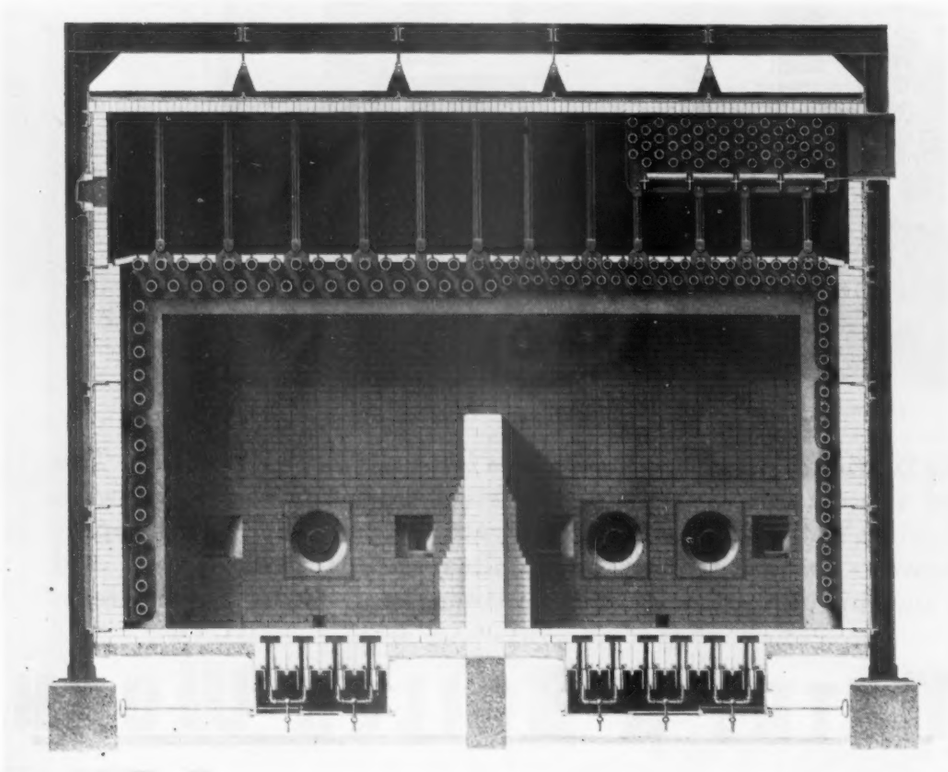

Fig. 8
Cross-section of a two-coil heater in one setting

EQUIPMENT THAT PAYS FOR ITSELF

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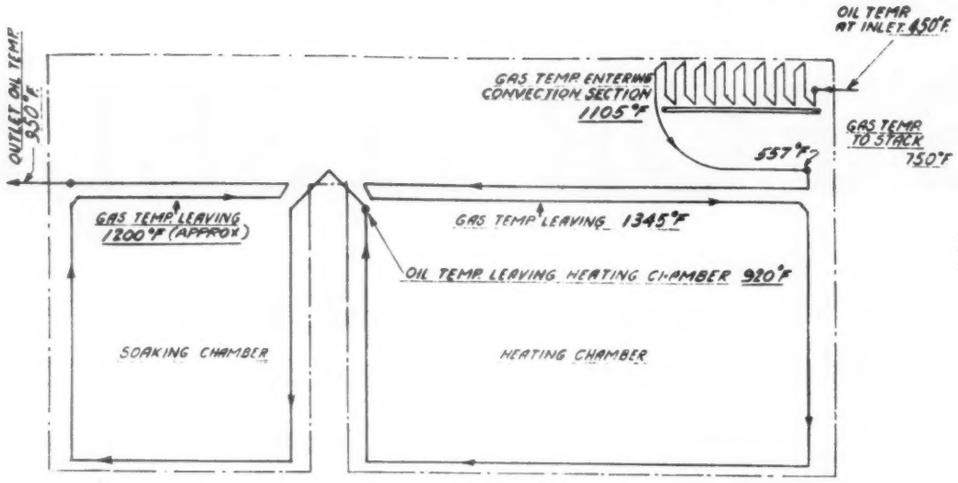
OIL TEMP AT INLET 450°F
OUTLET OIL TEMP 930°F
GAS TEMP ENTERING CONVECTION SECTION 1105°F
GAS TEMP TO STACK 750°F
GAS TEMP LEAVING 1200°F (APPROX)
GAS TEMP LEAVING 1345°F
OIL TEMP LEAVING HEATING CHAMBER 920°F
SOAKING CHAMBER
HEATING CHAMBER

Fig. 4
Diagrammatic flow arrangement of a single stream double chamber heater

the unit have sufficient flexibility to permit changing crude feed stocks, altering the operation on a given feed stock or running for different product specifications. Since, as pointed out above, there is only one combination of temperature, pressure and soaking time which will give the maximum crack per pass for a given stock charged to the heater, it follows that the heater must be so designed as to permit altering these operating conditions at will, within the range required by the specific application. These conditions can be met most satisfactorily by placing the preheating and soaking tubes of the heater in separate and independently fired chambers. Heaters arranged in this fashion were used in the units described in the previous part of this paper. Fig. 4 shows a typical flow of oil through such a heater. The oil enters the convection section, then flows through the upper, lower, and side wall tube banks of the preheating chamber, and finally through the side wall, lower and upper tube banks of the soaking chamber. To insure the control of independent firing in each section a brick partition wall separates the heating and soaking sections. Fig. 5 shows the flow of oil where two parallel streams are used. The flow through each parallel pass is maintained by independent controllers. It will be noted that the flows are symmetrical.

Uniformity of Heat Transfer Rate

In order that a cracking heater may operate with a maximum freedom from coke formation and a satisfactory degree of temperature control in all parts of the preheating and soaking sections, it is necessary that the rate of heat transfer to the tubes be kept as uniform as possible throughout any given section of the surface. These conditions are obtained by a proper correlation between the flow of oil through the tubes, the flow of combustion products from the heating chamber and the disposition of tube surfaces. Narrow restricted areas through which the hot flue gases must pass usually result in eddy currents, channeling, dead corners and hot spots. One method of handling the combustion products which has been very successful is to remove them over the entire area of the roof. In a heater of this type the upper row of roof tubes, which ordinarily have a considerably lower heat transfer rate than the lower roof tubes, is covered by special baffle tiles (Fig. 6) which gives a restricted clearance between the tube and the tile so that a high gas velocity over the surface of these tubes is secured. This results in a considerable increase in convection transfer rates for the upper roof row and thereby makes the total transfer rates uniform for all tubes in the radiant section. The roof tiles form a series of orifices which distribute the flue gases evenly over the entire roof area. Upon leaving the roof tiles the combustion gases flow into a relatively deep plenum chamber, turn at right angles and pass over the convection surface. The arrangement of tubes in this surface is such as to create a high gas velocity and a long travel over the heating surface so that the flue gas temperature is reduced to a minimum before leaving the setting. Tests on present installation show the flue gas temperatures are approximately from 200-300° F. higher than the temperature of the incoming oil, depending upon the service. It is unnecessary to use large amounts of convection surface to absorb the heat.

Uniformity of heat transfer in the radiant sections may be obtained by firing from both ends of the heater parallel to the tubes. The end walls where the burners are located are not covered with tubes and they therefore re-radiate heat to the end sections of the tubes, thereby equalizing absorption due to any increased temperature of combustion in the center of the heater.

It is not necessary to use a large quantity of excess air in order to obtain uniform heat transfer rates. The excess air normally used in the heaters now in operation

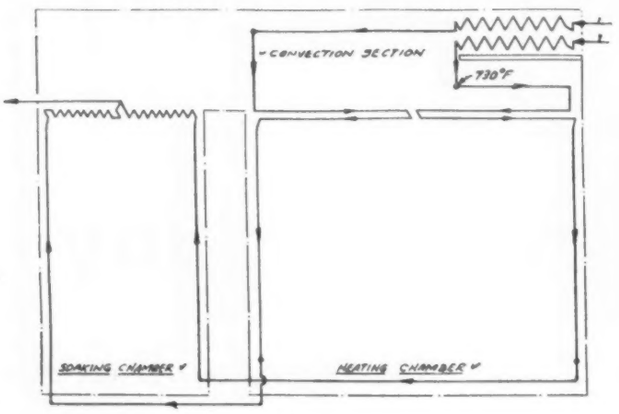

Fig. 5
Diagrammatic flow arrangement of a double stream double chamber heater

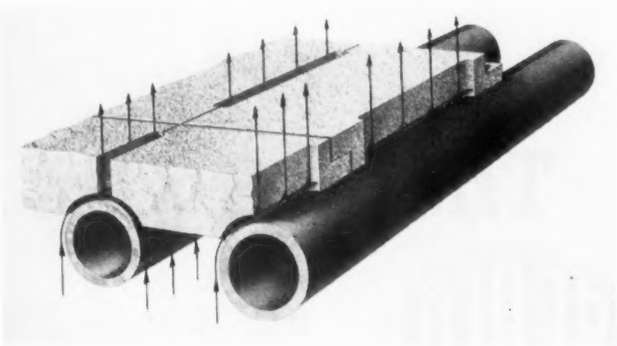

Fig. 6
Diffusion baffle tile arrangement over top row roof tubes

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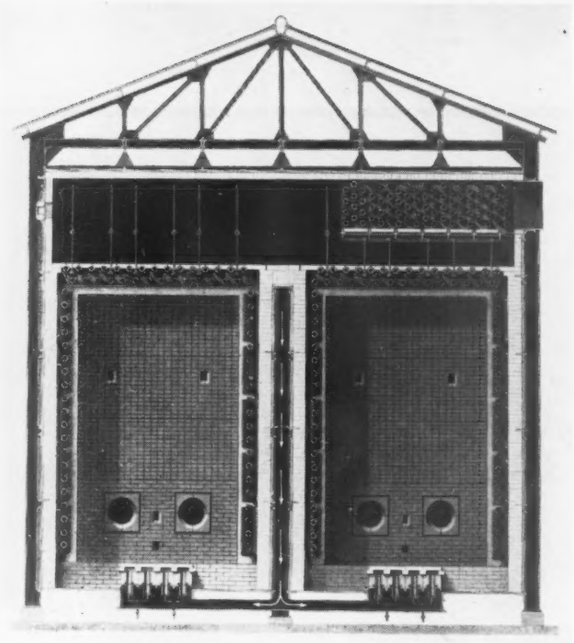


Fig. 7
Cross-section of a double chamber heater with heating and soaking sections

does not exceed 25 to 35%, while the CO_2 in the gases going to the stack has been as high as 12.4% by Orsat, when firing refinery gas. Flue gases analyses are shown in Table 5.

Refractory Wall Construction

The construction of the refractory walls of the cracking heater have a definite bearing on its operation. The heater wall should minimize heat losses to the outside, in order to permit high fuel efficiency. The wall construction should be as light as possible in order to reduce foundation load and permit supporting the heater above the ground to eliminate difficulties due to foundation settling. Fire brick is now available for light wall construction which weigh less than one-third as much as standard fire brick and have excellent refractory qualities.

From an operating standpoint it is also important that the refractory walls have a low heat storage capacity. The advantage of this is demonstrated by a recent operating condition in which mechanical failure of a heater feed pump brought about a complete interruptin of the oil flow through the setting. The fires were cut out immediately but flow was not re-established for nearly an hour. Due to the low heat storage capacity of the furnace walls, the oil lying in the tubes was not overheated, and the furnace was put back on stream without additional pressure drop through the coil to complete a long run.

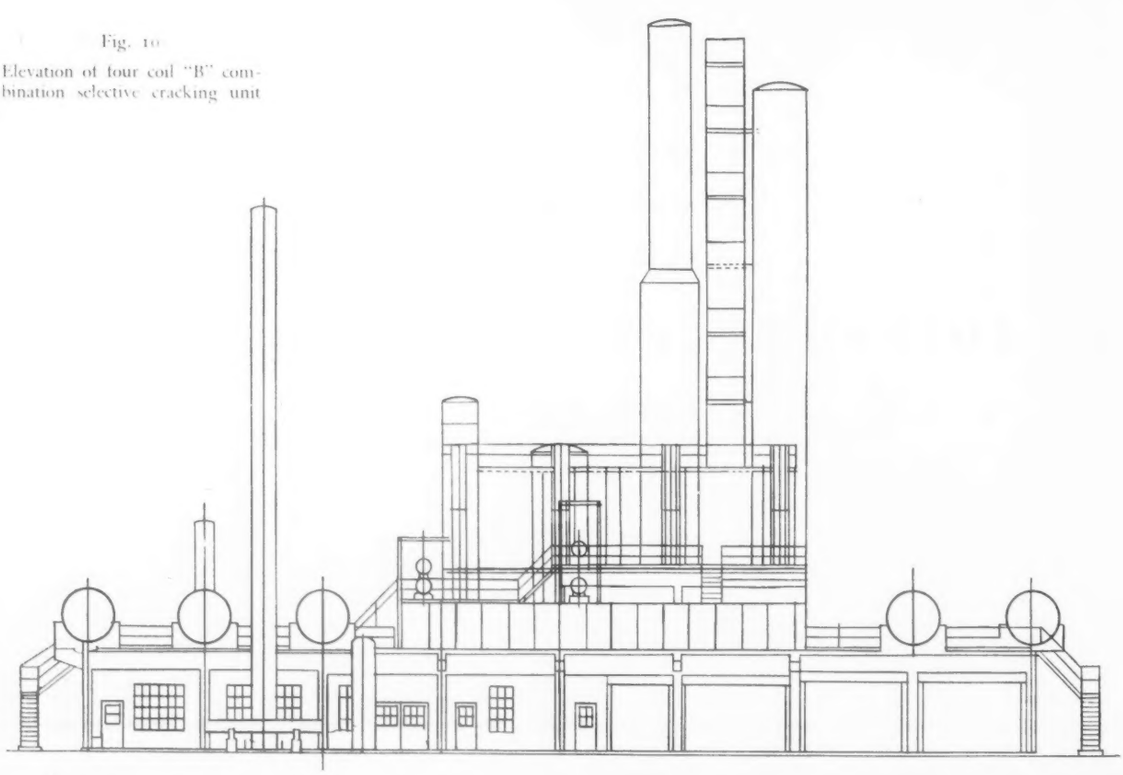
Supporting the furnace floor about ground to eliminate heat flow in the foundation and enclosing the entire heater in steel walls effectively prevents air-in filtration and increases the efficiency of the heater.

The cross-section given in Fig. 7 shows the construction of a heater having two separate chambers within the same setting, one for heating and one for soaking. Fig. 8 shows a heater with two separate chambers, each containing an independent coil.

Arrangement of Equipment

Because of the complexity and variety of equipment which is incorporated in a combination cracking unit, its proper arrangement for operating accessibility, minimum investment cost, safety considerations and compactness is an important design problem. Typical layouts are illustrated in Figs. 9 and 10. Fig. 9 shows the plan of arrangement of equipment of the Four Coil "A" combination selective cracking unit (Fig. 2), while Fig. 10 shows the elevation of the Four Coil "B" unit. This symmetrical arrangement of the major items of equipment, results in the most economical setup from the point of view of first cost, piping layout, and operating convenience. The hot and cold pump rooms are separated by a fire wall. All suction and discharge lines are brought in overhead leaving the pump house floor completely free of obstruction with attendant advantages of cleanliness and visibility. The control house is centrally located above the pump house, giving the operators a general view of the plant and easy access to control valve, and to vessels where operating levels must be main-

Fig. 10
Elevation of four coil "B" combination selective cracking unit



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The S. & J. Flame Arrester is available in 2", 3", 4", 6" and 8" sizes, and each size is

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The S. & J. Flame Arrester shown in combination with the S. & J. Still Type Breather Valve for high pressure storage applications.

THE S. & J. Flame Arrester shown at the right, serves a highly important function in protecting the interconnected tankage of a vapor recovery system. Although sufficiently important in the fire protection of individual storage tanks to justify their generous use, they are almost imperative in affording adequate fire protection to all tanks connected to an individual regulating valve in a vapor recovery system. They are made of aluminum, and are approximately one-third lighter in weight than comparable cast iron Flame Arresters, and their corrosion resistance is far greater.

The illustrations at the right show the correct method of applying S. & J. Flame Arresters to either high or low pressure storage. When used on high pressure spherical or spheroidal storage tanks, the S. & J. Still Type Breather Valve is an indispensable part of a complete installation. When applied to the conventional low pressure storage tank, the S. & J. All-Weather Poppett Type Breather Valve should be used to maintain the desired pressure.

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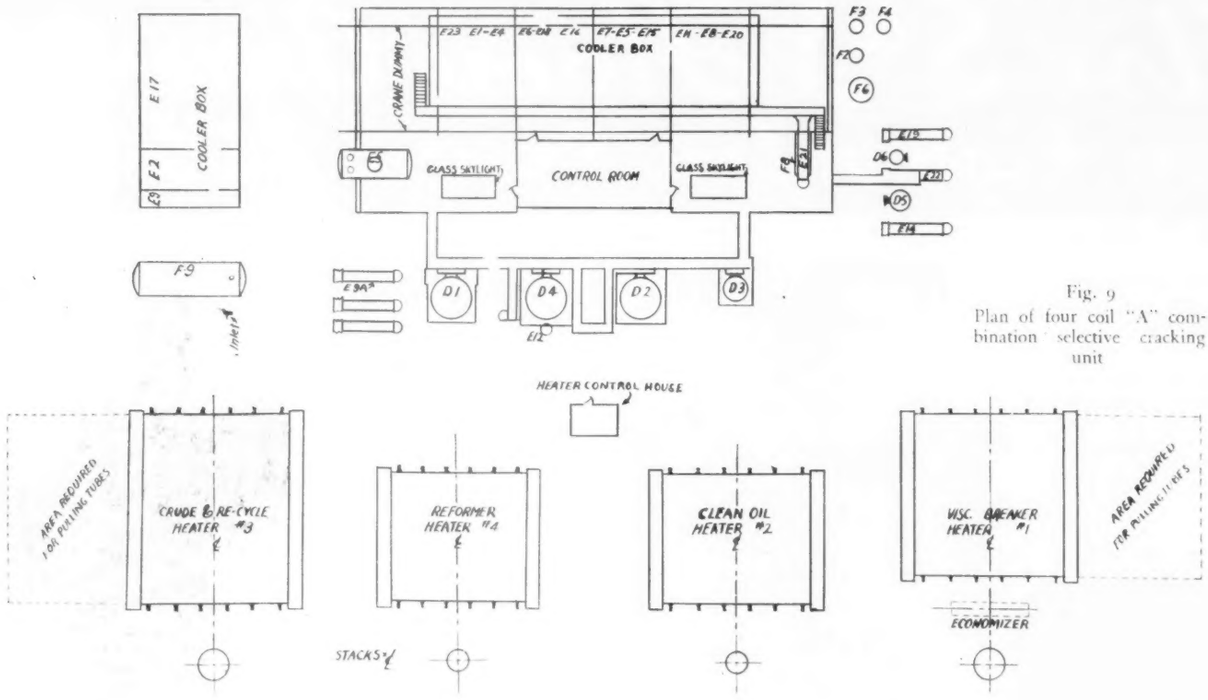

Fig. 9
Plan of four coil "A" combination selective cracking unit

tained. In cases where the furnace charge accumulators are not incorporated in the towers, they are located on the pump house roof, thereby furnishing good suction conditions for pumps without additional structural expense.

SUMMARY

The advantages of applying the principles of selective cracking and the degree to which they may be applied economically in several specific cases were discussed. Commercial applications of selective cracking were illustrated by process flow diagrams of modern three and four coil combination units. Diagrams were included of a typical arrangement of equipment for two of these units. Three sets of plant operating data were given. These data show the flexibility of the unit and the yields and product quality that can be expected when processing two different crudes. Definite control of time-temperature effect in the preheating and soaking sections of a cracking heater is of advantage. A new type of heater design permits this control for a wide range of stocks. This heater incorporates such features as control of the heating curve, uniform heat transfer rates and high thermal efficiency.

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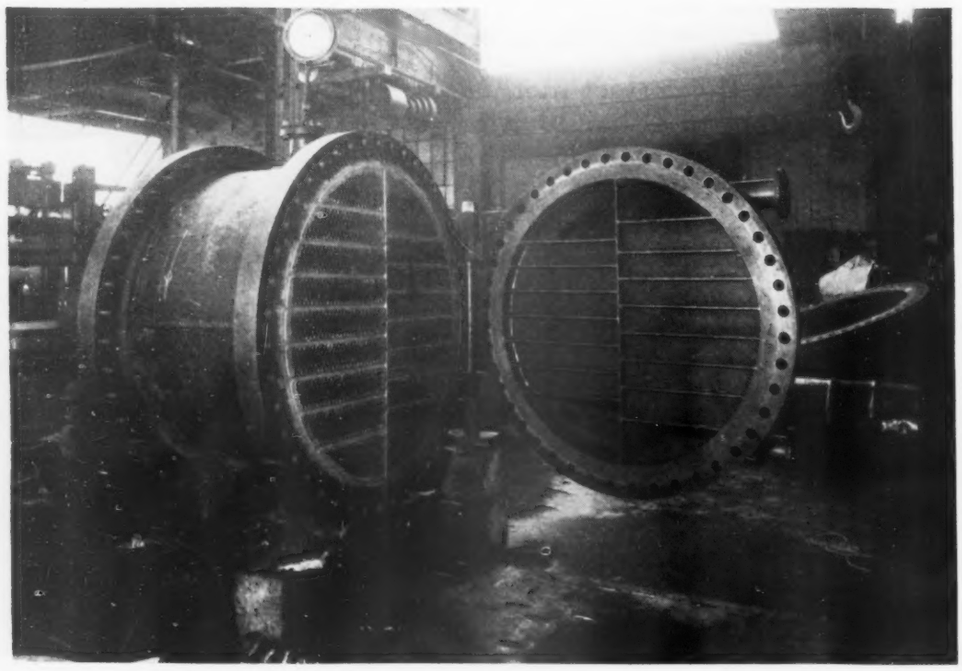

A 1612-tube, 30-pass heat exchanger with 950 sq. ft. of heat transfer area, installed in The Texas Co. refinery at Lockport, Ill. The shell is 52 inches inside diameter for a working pressure of 175 lbs./sq. in., and the 3-foot tubes of ¾-inch 16 B.W. gauge are built for 190 lbs. pressure. The unit is built by Condenser Service and Engineering, Inc., Hoboken, N. J.

CO-OPERATION

Gladly Acknowledged

Badger engineers recognize that much of the success of their oil refining plants and units is due to the cooperation given by the clients' engineering and operating staffs. Their experience and knowledge are invaluable, particularly when new ideas are to be carried out.

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Patent Literature OF TODAY

Polymerization. No. 2 078 468, *issued April* 27, 1937; *filed Nov.* 16, 1932; *W. M. Stratford, assignor to The Texas Co.; one drawing;* 5 *claims.*

Cracked naphtha distillate containing undesirable sulfur compounds and unsaturated hydrocarbons is mixed with an alkali metal, such as finely divided sodium, heated to 800-900° F. under superatmospheric pressure to polymerize unsaturated compounds and decompose the sulfur compounds to yield residues.

* * *

Lubricating oil. No. 2 078 472, *issued April* 27, 1937; *filed Aug.* 3, 1934; *C. C. Towne, assignor to The Texas Co.; no drawing;* 8 *claims.*

Viscosity index of an oil is improved by addition of a synthetic resin which is the reaction product of rubber with certain amphoteric metallic halides or halogen acids. Specifically, the moldable thermoplastic resin sold as "Plioform" by the Goodyear Tire and Rubber Co. is said to be a satisfactory material. The resin may be added in proportions of 0.5-5% by weight.

* * *

Fuel coating. No. 2 078 755, *issued April* 27, 1937; *filed Dec.* 12, 1931; *Per K. Frolich, assignor to Standard Oil Development Co.; no drawing;* 12 *claims.*

Material containing a hydrocarbon sulfonic compound is used for retarding dust formation on coal. Water-soluble sulfonates separated from acid treated petroleum and substantially free of tar are dissolved in water or hydrocarbon oils.

* * *

Doctor treatment. No. 2 078 773, *issued April* 27, 1937; *filed Oct.* 5, 1935; *E. T. Pummill, assignor to Socony-Vacuum Oil Co.; no drawing;* 3 *claims.*

Spent doctor solution containing lead sulfide is suspension is regenerated by adding a substance selected from the group consisting of the hydroxides of calcium and magnesium, contacting with air at 100-140° F., and removing the resulting compounds of the alkaline hydroxide from the doctor solution.

* * *

Inhibitor. No. 2 085 045, *issued June* 29, 1937; *filed Dec.* 27, 1933; *R. Rosen, assignor to Standard Oil Development Co.; no drawing;* 4 *claims.*

Oxidation of lubricating oil is inhibited by addition of a small amount of a compound having the general formula R-X-R′-OH, where R is an aliphatic radical, X is an element of the sulfur family consisting of sulfur, selenium, and tellurium, and R′ is an aromatic group.

* * *

Distillation. No. 2 085 422, *issued June* 29, 1937; *filed Dec.* 4, 1935; *F. L. Fast, assignor to Socony-Vacuum Oil Co.; one drawing;* 4 *claims.*

Object: to reduce the temperature level in vaporization of heavy distillates without including in the charge oil a carrier material differing widely from that to be recovered and to obtain a proper additional carrying effect of vapors lighter than the heaviest oil recovered as distillate without introducing to the distillation system an oil which is foreign in nature to the oils handled and without expenditure of additional heat to create those lighter vapors.

A feature is that an oil comprising a "long residuum" is first subjected to flash distillation to remove the greater portion of the desired material as vapors. The remainder is reheated and vaporized in such a way that advantage is taken of the carrying effect of the vapors previously formed. The reheated oil, now carrying a much smaller proportion of vaporizable to non-vaporizable material, will not lose as much temperature on flashing as the original mixture.

Another feature is that the sensible heat carried by the residue of the second vaporization step is further used to impart heat to the cooler residue of the first vaporization step efficiently. Still further the final temperature of the residue of the second flashing step may be controlled by proportioning vaporizable materials present in the stream before the secondary vaporization occurs.

* * *

Dewaxing. No. 2 085 521, *issued June* 29, 1937; *filed July* 23, 1934; *A. P. Anderson and C. M. Kellogg, assignors to Shell Development Co.; one drawing;* 11 *claims.*

The main difficulty in continuous dewaxing with propane is control of the rate of chilling of the oil-propane mixture. Slow and uniform chilling is necessary to prevent forming fine wax crystals difficult to filter.

Such control is achieved by using a greater number of stages than would be possible with separately built evaporators, by maintaining a uniform temperature and pressure gradient by admitting fresh precooled propane in some or all of the intermediate stages, by recirculating gaseous propane from a given stage in indirect heat exchange with the oil-propane mixture of the preceding stage, and by introducing the liquid mixture into each stage under sufficienthydrostatic head to retard the rate of pressure drop between the stages.

Compact arrangement, smaller initial cost, smaller insulation cost, and use of gravity for interstage transfer are other objects of the invention.

* * *

Conversion. No. 2 087 268, *issued July* 20, 1937; *filed Feb.* 10, 1933; *H. W. Sheldon, assignor to Houdry Process Corp.; one drawing;* 18 *claims.*

In a combination of pyrolytic conversion with a catalytic process in which a contact mass is regenerated in situ, a charge is separated into at least two fractions of different boiling and molecular weight ranges. One is heated without substantial pyrolytic conversion and passed in vapor phase through a solid adsorptive catalyst comprising activated hydrosilicate of alumina. The other fractions pass through a second pyrolytic zone from which gasoline is directly obtained and blended with gasoline obtained from the adsorption zone.

* * *

Motor fuel. No. 2 087 582, *issued July* 20, 1937; *filed Aug.* 22, 1933; *H. G. Schneider, assignor to Standard Oil Development Co.; no drawing;* 8 *claims.*

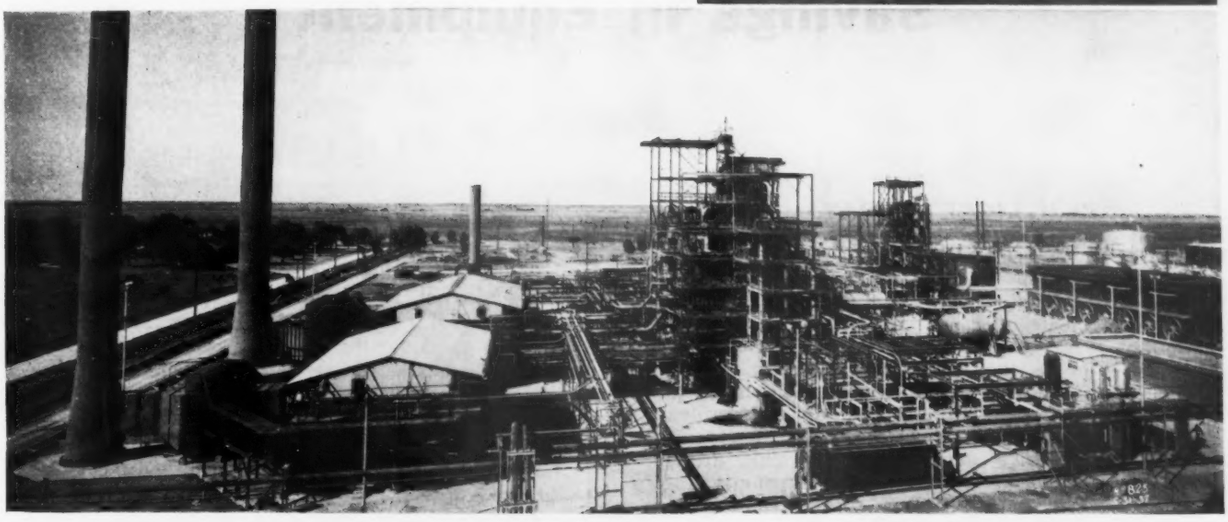
Both a tertiary alcohol and a metallo-organic anti-knock agent are added to a light liquid hydrocarbon fuel base to produce a three-component fuel. It was discovered that tertiary alcohols show both anti-knock characteristics and particularly high lead susceptibility, and at the same time cause a lower loss in heating value compared to the fuel. A motor fuel would contain 70% gasoline and 30% tertiary butyl or amyl alcohol and about 1 cc. of lead tetraethyl per gallon.

* * *

Hydrogenation catalyst. No. 2 087 608, *issued July* 20, 1937; *M. Pier, W. Simon, and W. Kroenig, assignors to Standard-I.G. Co.; one drawing;* 4 *claims.*

Hydrogenating gas at 250-700° C. (480-1290° F.) and 20 atmospheres pressure is passed over distillable carbonaceous material while in contact with a catalyst essentially comprising an iodide of a metal selected from the group consisting of nickel and cobalt and a sulfide of a metal selected from group 6 of the periodic system to produce motor fuel of good anti-knock properties.

THERMAL



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POLYMERIZATION

Salvage Methods Effect Great Savings in Equipment

By H. LIGGETT GRAY*

● A systematic procedure for cleaning and reclaiming used equipment effects considerable savings in used material, and improves the efficiency of working equipment. Vats to contain cleaning solutions, large enough to receive the articles to be cleaned, is best for portable equipment, even engines, pumps, etc., if any great amount of material is to be handled. Tanks, etc., in plant or field can best be cleaned by applying the proper solution by means of brushes, removing dislodged material and solution by sprays, brushes or other effective methods.

ONE of the most productive types of industrial cleaning from the point of view of financial savings for the user is the cleaning for reclamation and salvage of the many different types of equipment and parts used in the production and refining of petroleum oils. Economical means for putting back into usable condition such expensive items as valves, pipe fittings, drilling tools and larger equipment is constantly coming into wider use because it is recognized that for a comparatively few dollars, equipment worth many thousands of dollars can now be easily put back into condition practically equivalent to new equipment.

This work, and the materials and methods for carrying it out, is also extremely interesting from the technological point of view. The items to be cleaned and reclaimed are very diversified and, therefore, the conditions and methods under which the operations are best carried out require an engineered study, of which an outline is furnished in condensed form in this article.

In the production division, a study of the different classes of articles to clean for re-use roughly divides them into the following types:

Large equipment, such as rotary drilling engines and field pumps.

Drilling bits and tools.

Valves, pipe fittings and pipe.

Tank plates or tanks.

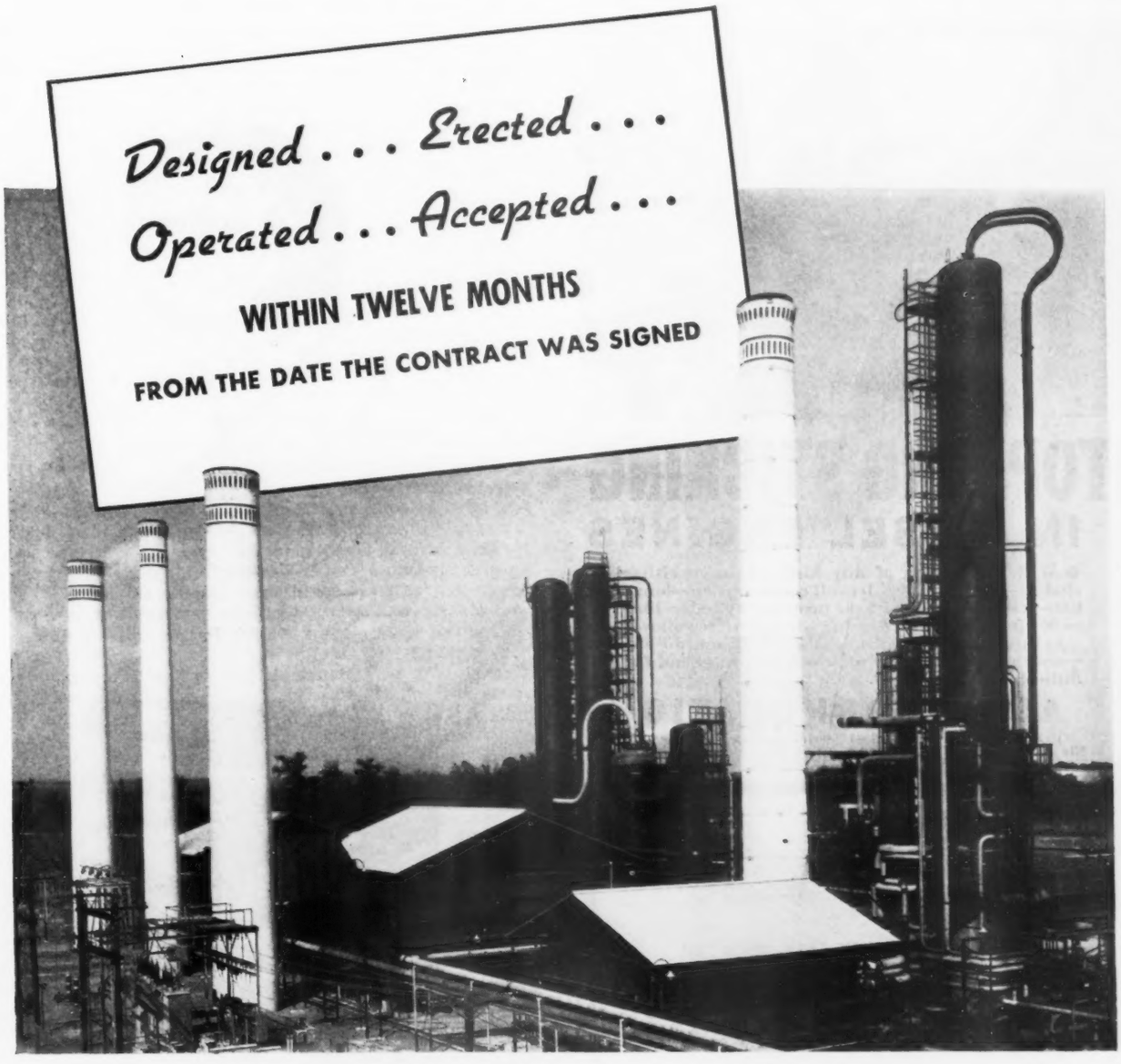
*Oakite Products, Inc.

Fig. 5—Applying special paint removing material to edges of tank sheets

Small Parts Cleaned in Tanks

The cleaning of valves, pipe fittings, drill bits and similar small parts is handled most economically by immersion in a heavy-duty cleaning solution. With small parts, it is more economical to provide a cleaning and reclamation department at some central point and bring the truckloads of old parts to the salvage department for cleaning inspection and reclamation, than it is to carry the cleaning operation out to each individual locality. Therefore, many oil companies have established a cleaning and reclamation department, equipped with one or several adequate tanks of rugged but economical construction with provision for heating the cleaning solution. No special design of tank is required as any open-top tank of steel plate will serve the purpose as the proper type of cleaning solution will not attack the steel or iron of the tank or of the parts being cleaned. Tank capacities vary from 200-300 gallons up to 800-1000 gallons capacity, in accordance with the size and volume of parts to be cleaned.

Means of heating the solution is optional but should provide sufficient heating capacity to readily bring the cleaning solution temperature up close to the boiling point and to maintain it there. In planning the heating capacity, it should be borne in mind that when a large volume of metal parts is being constantly put through a tank, greater heating capacity is required because the large weight of cold metal in the parts being cleaned has a constant tendency to cool off the cleaning solution and reduce its effectiveness. Such an operation is generally located at a point where steam is available and that generally provides the most satisfactory means of



Of interest to executives considering new plant construction is the record of a 14,000 barrel per day combination selective cracking unit designed and built by Lummus for a major oil company. The plant was completed in ten months. On its initial run it was operated continuously for more than thirty days. All guarantees were met and the plant was accepted and taken over by the company within one year from the date the contract was signed.

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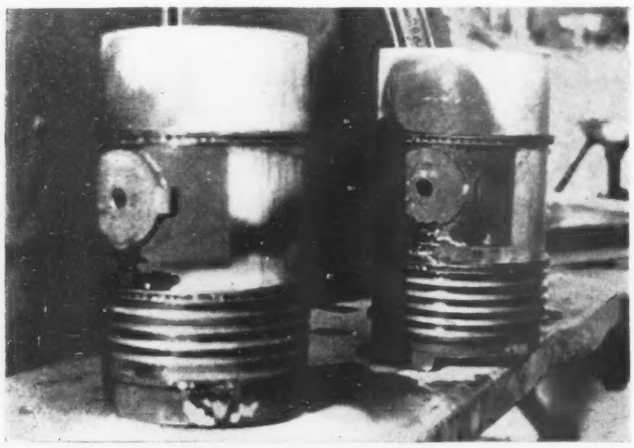

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heating. It is recommended that the heating be done by a steam coil which is easily made from straight lengths of pipe coupled by return bends. An open steam pipe put into solution is not recommended for heating because it will dilute and waste a good cleaning material. Experienced cleaning service men can furnish a table from which

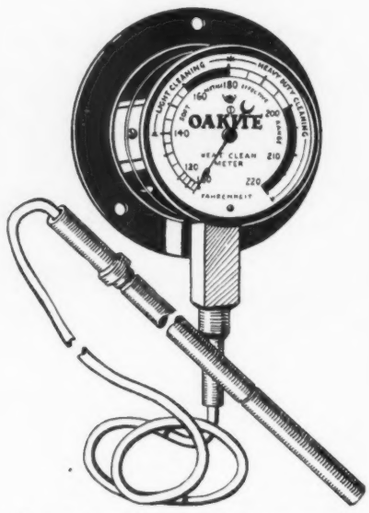

Fig. 1—Special type of meter to give tank operator a guide on proper working temperatures

Fig. 2—Perforated metal basket and overhead hoist and trolley facilitates handling of parts

it is readily determined what length of pipe of any diameter is required with various steam pressures to maintain any capacity of cleaning solution at a good working temperature.

Where steam is not available, cleaning tanks are occacasionally heated by burning oil or natural gas in any suitable burners under the tank in those localities where those fuels are more economically available than a steam supply.

The special instrument illustrated in Fig. 1 is of great advantage to enable the operator to know that the solution is being maintained at effective working temperature.

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Fig. 2 illustrates the advisability of supplying a perforated metal basket in which to handle the parts for immersion, and also the means of saving labor and speeding up the work by adequate handling facilities by hoist and overhead trolley.

The cleaning operation removes all the heavy oil deposits, together with the sand, dirt and other foreign matter which adhere to the parts and make it practically impossible to put them back into use without such a cleaning. The cleaning is followed by an inspection, during which it is very easy to replace any gaskets, valve seats or other imperfect parts, making the items practically as good as new. This salvage department is generally located adjacent to a stock-room and then the salvaged parts can go right into the stock-room, together with new parts to be re-issued for further installations.

Reclamation of Larger Equipment

Where rotary drilling engines and field pumps are widely used, these naturally become so encrusted with heavy deposits of crude oil and accumulations of sand and grit that their operating effectiveness is greatly reduced. It is very costly in labor and most ineffective to attempt to clean them up by a hand method of scraping, wiping with rags, etc. Therefore, where there is any volume of this type of work it is a saving both in actual labor and in maintaining this equipment in first-class operating condition to provide a tank large enough to immerse such parts for cleaning and salvage. Selection of the cleaning material involves the same requirements as for the cleaning of small parts described above. The solution should have the ability to penetrate and loosen the heavy types of petroleum oils with little or no hand scraping; cleaning materials should be free from fire hazard; the cleaning materials should have long working life to obtain economy; the cleaning materials should be safe against attack upon any parts cleaned and should be safe for the operators to handle.

The tank requirements are very simple, demanding simply a rugged tank of steel plate sufficiently large to take the largest pump or unit to be cleaned and should have adequate heating to operate it at a near-boiling temperature. It is also highly advisable to equip *all* such cleaning tanks with guard rails completely surrounding them to avoid an accident to the operators. While there are available cleaning materials of heavy-duty ability, which in themselves are harmless if splashed upon the operator, we should remember that the tank operates at a near-boiling temperature and we should provide every safeguard that a careless operator can not accidentally slip into the tank, no matter how careless he may be.

Volume Cleaning with Economy

As an example of this type of reclamation, a surprising volume of cleaning is put through one tank as small as 135 gallons capacity at solution. This tank is confined to the removal of crude oil, sand, asphalt and paint compounds and foreign matter from steel and brass valves, flange couplings, elbows and other fittings and pipe nipples.

Parts are loaded into a container made of a pipe frame covered with heavy wire mesh, which holds about 800 pounds of parts per load. During a period of about three weeks, 62 loads of parts were cleaned through that tank, an average of 800 pounds per load, or 25 tons of expensive miscellaneous valves and pipe fittings reclaimed in that period of time. The initial charge of cleaning material was made up at 6 ounces per gallon of water, and including the upkeep material added during that period, the cost for cleaning material ran about 12c to 13c per ton of parts reclaimed. Considering the cost of valves and pipe fittings, it is evident the large savings which are obtained by such a reclamation method, even though it is necessary with some valves to replace the seats or some other working parts.

When new drilling or a rearrangement of storage capacity for crude oil requires the moving of tanks to an-

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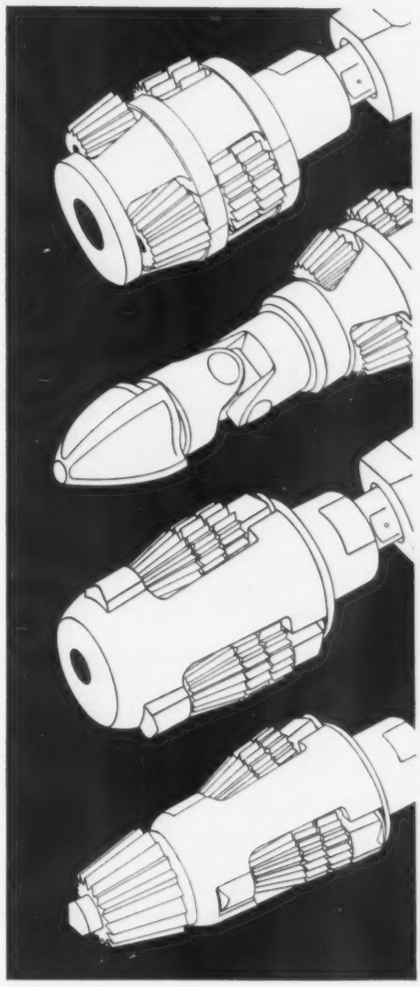

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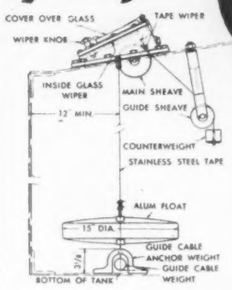

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Fig. 3—Where a large number of tank sheets are cleaned, it is economy to provide a heated tank for complete immersion of the sheets

other locality, an engineered program of cleaning becomes essential.

With riveted tanks, following the marking of each sheet and then the cutting out of the rivets to transport the tank sheets to a new locality, a systematic method for cleaning the sheets will save a great deal of labor and make the handling much easier when the tank is re-erected in the new locality.

If steam is available a heavy duty cleaning solution in a tank, as illustrated in Fig. 3, will put through a large amount of sheets in a small period of time, removing all the heavy oil deposit so as to facilitate the new riveting and caulking when the tank is again erected. This method involves almost no labor, is quick, and is therefore highly recommended where steam and a solution tank can be provided.

However, without the above facilities, it is still possible to do an economical and practical job of cleaning these sheets in the field by means of a heavy duty cleaning solution and a small working force utilizing brushes for application. Fig. 4 illustrates this method in use.

Welded tanks presented a problem for which a special cleaning operation was developed in order to assure sound, solid welding when the tanks are re-erected. It is recognized that in welding two pieces of steel together the metal at the weld and the adjacent area must be clean and free from foreign substances. When a tank is taken down, the sheets have a coating, not only of oil and foreign matter, but generally there is paint on the outer surfaces of the sheets.

This paint seriously interferes with or prevents the making of good welded joints when re-erecting such tanks. Therefore, after a good cleaning of the sheets, it is necessary to remove the paint near each edge of the sheets. A

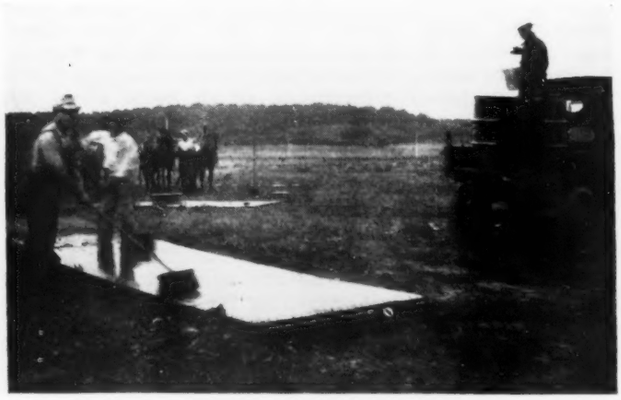


Fig. 4—In the field, tank sheets can be economically cleaned by hand if the work is properly organized

quick, economical method consists of a small pressure tank containing a solution of special paint removing material of low cost, and which will quickly cut off the paint from the metal. The operator directs the stream along each edge of the sheet, applying it along a strip about 2 or 3 inches wide. Fig. 5 shows the application of the paint removing material. The edges of a number of the sheets are coated in that manner. Then the operator quickly applies a cold water hose to the edges and the paint removing material is quickly flushed off, taking off the coating of paint.

This gives sheets on which the edges are thoroughly clean and free from both foreign matter and paint for about 3 inches all around and the welders can make steady progress on re-assembling the tank with the assurance that no foreign matter will interfere with sound welding.

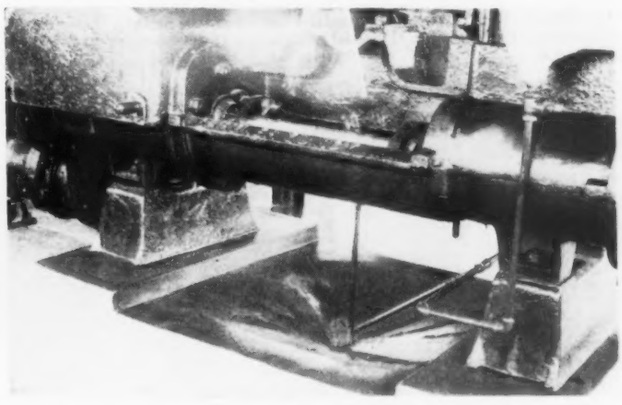
Adapting Methods to Conditions

While the preceding outline illustrates typical operations in wide use, experience has shown that the actual working conditions are somewhat different in almost every instance. For that reason, while standardizing the general principles upon which such cleaning operations are carried out, it has been found highly essential that some man, experienced in such work, make an individual study of each new instance where such operations are to be put into use. Field service engineers, trained to work out the practical application of these methods, and assist producers and refiners to adapt the methods to their own conditions, have been permanently located in oil areas and it is largely through their practical work in the field that progress has been made, not only in the development of the most suitable cleaning materials themselves, but also in the working out of these effective methods.

Pump Drains

Realizing that the 'dead-end' of a steam line, whether on live or exhaust steam service, will accumulate enough condensate to cause damage when frozen, connections were made to reciprocating pumps in recently designed plants so that all water may readily be drained away from the piping and connections. Foundation blocks were poured over permanent drain lines beneath the pump room floor, and the blocks between each end of the pump were formed so water and oil will flow to the outlet in the center of the depression. Screens of heavy wire were placed in the drains to prevent fouling from waste and rags, and the drain lines from the steam connections were installed so the ends were near the outlet to prevent splashing.

The steam piping was equipped with fittings so condensate would flow readily from the system when the drain gates were opened as the pumps were taken out of service. Tees were installed on the vertical risers, running, so no pockets were formed by abrupt turns. The usual drain cocks beneath the steam cylinders were replaced by small bull plugs. The operators must remove them when draining and can easily ascertain when the openings are clear, more readily than if pet-cocks are used.



Sump, built into foundation, with strainer and pump service lines, in Skelly's Fairfax, Okla., gasoline plant

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World Average Petroleum Gravities Computed to Improve Statistics

ESTABLISHMENT of a basis for transforming units of weights and volumes of crude oil and petroleum products consistently from one system to another for statistical purposes is sought by Mihail Pizanty, director of "Moniteur du Petrole Roumain," published in Bucharest. The plan is to establish single, weighted, world-average gravities for crude oil and a given list of standard products.

The gravity computed for crude is 0.8617 which compares with the American Petroleum Institute's recommendation of 0.8600. The former corresponds to 137 kilograms for a 42-gallon barrel and the latter to 136.7.

Present comparison of world figures often show large differences and produce confusion of information on the actual situation, Mr. Pizanty points out. For example, in dividing the number of barrels of crude produced in Roumania in 1936 by seven the published tonnage shown was 9,076,000 instead of 8,704,000, an augmentation of more than 4.2 per cent of the actual production.

The use of this error in calculation to transform the figure back to barrels in other countries' publications and then into tons again using the same error over again, in a known instance, has produced an additional 4.2 per cent error. A specific example of the methds of calculation used in transformation of weight units into American units is the following:

	Kg./Bbl. Crude
World Petroleum	142.9
Bureau of Mines	137.0
Oil and Petroleum Yearbook	132.5

The system put forward by Mr. Pizanty is outlined in full in a table in which the nomenclature of four languages is made to correspond to certain average gravities and to computed transforming factors based upon these average gravities. These include kilograms per barrel (42 gallons), kilograms per gallon (American and British), barrels (42 gallons) per ton of 1000 kilograms, and American and British gallons per ton of 1000 kilograms. Gravity figures were computed by the formula: $D = \frac{144.32}{134.32 + N}$ where N is degrees Baume.

The argument for this system, though producing some inaccuracies through differences in average gravities in different countries and irrespective of the manner of computing gravities, is that consistent statistics will result which will be dependable from year to year. Under present circumstances given tonnages or measures in other units are likely to be transformed by one of several factors because the average gravities are never given.

Expressions of opinion or comments upon the practicability of the method proposed are invited by NATIONAL PETROLEUM NEWS. Most open to criticism, perhaps, is the classification of products. The difference between Mr. Pizanty's and the A.P.I. or Bureau of Mines figure for gravities of crude is but slight.

A.I.M.E. Cuts Price of Transactions

Reduced prices on back volumes of Transactions of the American Institute of Mining and Metallurgical Engineers. Prices available until Dec. 31 will be 50% under those previously quoted, it is announced. Volumes on petroleum are priced as follows: 92—$7; 77, 86, 118—$4; 82—$3; and 98, 103, 107, 114, and 123—$2.

Volumes 1 to 76 are on miscellaneous subjects. Indexes are in four volumes at $5 each or $18 a set. They cover volumes 1-35, 36-55, 56-72, and 73-117 which go back 66 years to 1871. All prices are F.O.B., New York City. Orders should be addressed to 29 West 39th St., New York.

To Study Smoke Abatement

SALT LAKE CITY, Sept. 17.—The state legislature of Utah has appropriated $25,000 for experimentation relative to the production of smokeless fuel and smoke abatement. The work is to be done at the University of Utah. Applications will be received by President J. L. Gibson, Utah Conservation and Research Foundation here until Sept. 26 for the position of fuel research engineer with a salary of $250 to $400 per month, depending upon qualifications of the applicant. Duration of the work is about 18 months. Some experience is desired in low temperature carbonization of coal, oil refining smoke abatement, and fuel experimentation. It is expected that the applicant has had a thorough technical training.

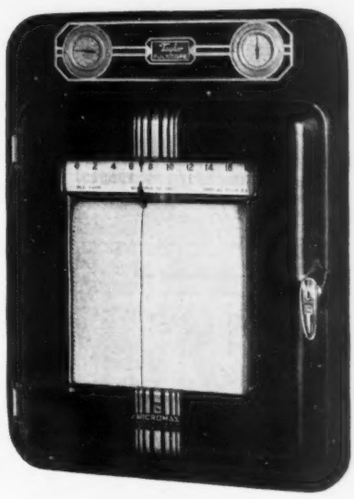
TABLE I
Average Gravities and Coefficients of Transformation

	A. P. I. Gravity @ 60°F.	Average specific gravity at 15° C.	Barrels (42 gallons American)	Kilograms per Gallons (American)	Gallons (British Imperial)	Barrels (American) per ton of 1000 kg.	Gallons (American) per ton of 1000 kg.	Gallons (Imperial) per ton of 1000 kg.
Liquefied gases		0.580	92.2100	2.1955	2.6367	10.845	455.48	397.26
Natural gasoline	76.7	0.680	108.1082	2.5740	3.0913	9.250	388.50	323.49
Gasoline (light)	65.1	0.720	114.4675	2.7254	3.2731	8.736	366.92	305.52
Gasoline (medium)	59.8	0.740	117.6472	2.8011	3.3640	8.500	357.00	297.27
Gasoline (heavy)	53.6	0.765	121.6218	2.8958	3.4777	8.222	345.33	287.55
Naphtha	46.6	0.795	126.3912	3.0093	3.6141	7.912	332.30	276.69
Kerosine	41.1	0.820	130.3658	3.1039	3.7277	7.671	322.18	268.26
Tractor oil	39.1	0.830	131.9556	3.1418	3.7732	7.578	318.29	265.03
Artificial crude	38.0	0.835	132.7506	3.1607	3.7959	7.533	316.39	263.44
Gas-oil	35.0	0.850	135.1353	3.2175	3.8641	7.400	310.80	258.79
All products	34.3	0.854	135.7712	3.2326	3.8823	7.365	309.35	257.58
All products including crude oil	33.5	0.858	136.4072	3.2478	3.9005	7.331	307.90	256.38
Crude oil petroleum	32.7	0.862	137.0000	3.2619	3.9173	7.300	306.57	255.28
Benzol	28.5	0.885	140.6997	3.3500	4.0232	7.107	298.51	248.56
Diesel oil	25.8	0.900	143.0844	3.4068	4.0914	6.989	293.53	244.42
Furnace oil	24.0	0.910	144.6743	3.4446	4.1369	6.912	290.31	241.73
Other sorts (heavy)	22.4	0.920	146.2641	3.4825	4.1823	6.837	287.15	239.10
Fuel oil for cracking	20.7	0.930	147.8539	3.5203	4.2278	6.763	284.07	236.53
Lubricating oil lubricants	17.5	0.950	151.0336	3.5960	4.3187	6.621	278.09	231.55
Fuel oil residue	15.9	0.960	152.6234	3.6339	4.3642	6.552	275.19	229.14
Naphthenic Acids	13.2	0.978	155.4851	3.7020	4.4460	6.431	270.12	224.22
Units	10	1.000	158.9827	3.7853	4.5460	6.290	264.18	219.97

Activities OF EQUIPMENT MANUFACTURERS

For process control problems where smooth, proportional valve action is imperative and the potentiometer principle of temperature measurement is preferred, the Taylor Instrument Companies, Rochester, now offers the Fulscope Micromax air-operated potentiometer controler.

This is said to be the only potentiometer in which all functions affecting accuracy of temperature measurement



are fully automatic. Principal parts of both mechanisms are interchangeable with Fulscope and Micromax instruments now in service. The unit operates in conjunction with the Taylor Motosteel diaphragm valve. Catalog 101R covers the equipment.

* * *

Heat Transfer

Filled tube heat transfer apparatus of The Griscom-Russell Co., New York, is described in a new bulletin just issued. A condenser which will handle large quantities of viscous fluid at high vacuum without condensing steam in the vapor is one piece of equipment described in the bulletin. Others are a condenser which has an over-all temperature range of more than 500 degrees, a reboiler and a preheater which have proven successful with hot tar as the heating medium, and a gas cooler which is handling gases at over 1000° F.

* * *

Welded Pipe

Advantages of welded joints in installing piping systems are discussed in "Welded Piping", a 12-page, illustrated booklet, published by The Linde Air Products Co., New York.

* * *

Pipe

The first complete data bulletin on standard size Haveg pipe, fittings, valves and fume duct is announced by Haveg Corp., Newark, Del. A table of chemical resistance properties is included.

* * *

Turbine Pumps

Two new bulletins describe the Fairbanks-Morse line of deep-well turbine pumps with enclosed impellers. Bulletin 6920 deals with oil lubricated units used for most applications. Bulletin 6920R covers water lubricated units, which are used where the water must be kept pure and clean and oil lubrication is not permissible. Both types are available in sizes from 4 to 16 inches and in capacities from 10 to 2300 gallons per minute with lifts ranging to 400 feet.

Steam pumps are described in Bulletin 6205. They are designed to pump at pressures up to 420 pounds and up to 464 gallons per minute.

* * *

Instrument Bulletin

Wheelco Instruments Co., Chicago, has just issued an 8-page bulletin on their new Model 1101 Flame-otrol, a gas burner safety device designed to prevent explosion. This instrument instantly shuts off the gas in case of flame failure, it is said. All operations are electrically controlled. An electrode extending into the flame is the detecting device.

* * *

Hard-Facing Booklet

A new and more complete edition of the booklet, Hard-facing with Haynes Stellite Products, is now being issued by Haynes Stellite Co., Kokomo, Ind., a unit of Union Carbide and Carbon Corp. The booklet describes over 500 money-saving applications of the hard-facing process. The new edition is the fourth printing since original publication three years ago. New sections present information concerning special Haynes Stellite J-Metal cutting tools and the corrosion-resistant Hastellow alloys.

* * *

Fire Protection

In a new 8-page color brochure entitled "Lux Makes the Difference", Walter Kidde & Co. shows briefly and without technical detail what a built-in carbon dioxide fire protection system means to industrial plants and electrical properties.

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This index is published as a convenience to the reader. Every care is taken to make it accurate, but National Petroleum News assumes no responsibility for errors or omissions

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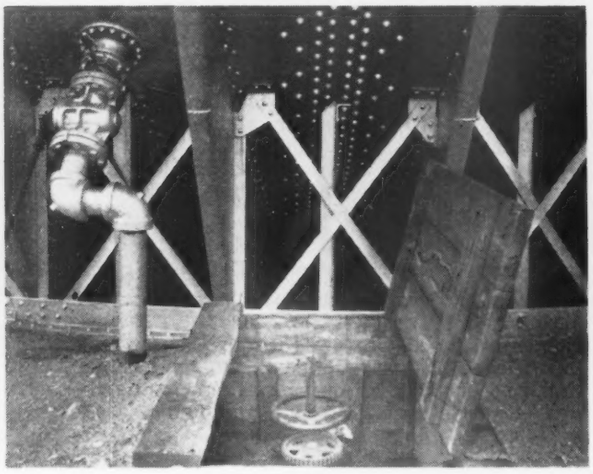
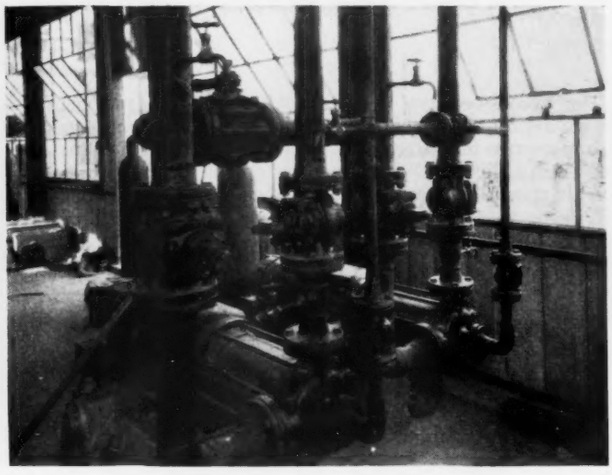
(See also page 56)

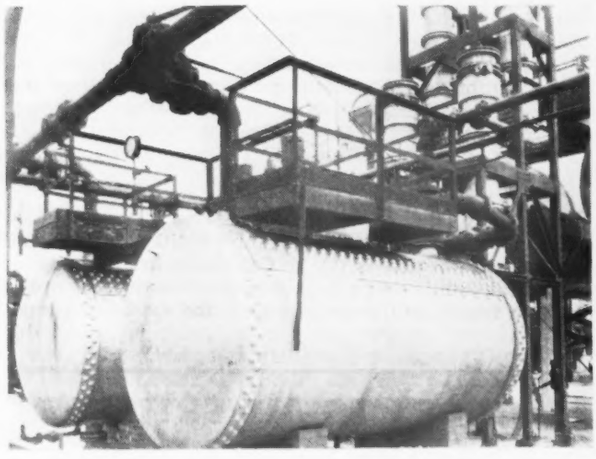
As told in pictures by the **NORDSTROM VALVE** *Cameraman*



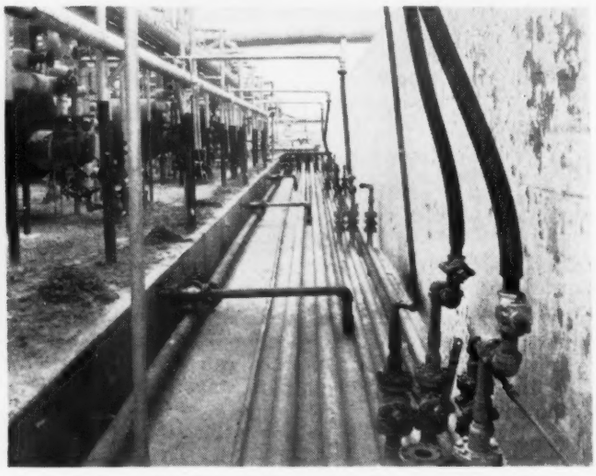
Phillips Petroleum Plant, Spheroid Gas Tank.



Emco Meter setting with Nordstrom Hypreseal Valves in Oklahoma field.



Humble Oil Company, Boytown Plant, Casing Head Gasoline Tank.



Phillips Petroleum Company, Texas installation.

Humble Oil Company, Ingleside Plant, Manifold for Casing Head and Gasoline Lines.

Associated Oil Company, Avon Refinery, Avon, Calif.

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Montana's mountains present difficulties to the highway engineer in proportion as they provide attractions for the tourist. A view of U. S. Highway No. 2, near the entrance to Glacier National Park, bituminous surfaced

More Bituminous Roads

Asphalt Road Surfaces Found To Be More Economical In First Cost, Maintenance and Improvement Expense, Than Any Other Surface Yet Developed, Is Feeling Expressed At Montana Road Conference.

By JACK N. WESTSMITH
N. P. N. Staff Writer

GLACIER PARK, Mont. GASOLINE was once a petroleum by-product for which there was little use until the introduction of the internal combustion engine. Then it moved into a ranking position among the major products of petroleum.

Now asphalt appears ready to become "of age" as a highway construction material to an extent that the oil industry may again, as in the case of gasoline, be nursing another potential principal product of petroleum. At least that was intimation of highway engineers, technicians, chemists and asphalt producers attending the Montana National Bituminous Conference here Sept. 7, 8 and 9. According to these men, more and better bituminous roads are in prospect for the United States, Canada and Mexico.

Sponsored jointly by the Western Petroleum Refiners Assn. and the Montana Highway Department, the conference attracted 410 delegates from 26 states, four Canadian provinces and Mexico. Approximately 300 motored to the conference and arrived with a fresh picture of road construction technique in this far western country.

A group of highway engineers from Mexico City traveled 7000 miles in reaching Glacier National Park and their observations promoted a keener understanding of the subject matter presented in the various papers and of the discussions which followed.

Following the practice of previous years, each highway department was invited to submit papers on subjects selected by the writers themselves. These papers were grouped and analyzed by four committees under the major divisions of Research, Fundamentals, Construction and Maintenance.

The analysis was then presented by each respective committee chairman in the form of a summary, which gave a useful and comprehensive expression of opinion and experience from the various highway engineers. While these summaries were necessarily limited in length, there was ample time for round table oral discussions of the subjects brought out in the papers.

Special Assignment!

● Fully aware of the rapid development and use of bituminous materials in highway construction in recent years, and of the oil industry's interest in this trend, NATIONAL PETROLEUM NEWS again this year assigned one of its own staff writers to cover the Montana National Bituminous Conference, at Glacier Park, Montana.

The accompanying article interprets the proceedings of the three-day meetings from the viewpoint of the oil industry and its interest in asphalt production. Here again is demonstrated the progressive forward march of one of petroleum's highly valued products.

E. L. BOYE, Socony Vacuum Oil Co. and president of the Asphalt Institute, sounded the keynote of the meeting when he pointed out that during the calendar years 1934, 1935 and 1936 bituminous highways of all types, from surface treatment to hot-mix, made up more than 80 per cent of all state highway construction higher than waterbound macadam.

He believed the significance of this showing was that the asphalt highway program had passed beyond the stage of industry promotion and had become a very fundamental concern of the highway departments themselves. He urged attendance at the annual asphalt conference in Memphis during the week of De-

A high type bituminous road has opened the Redwood Empire to motor travel in northern California and southern Oregon. Seventy-six house trailers were counted over a distance of 200 miles of this highway in California

cember 6 when outstanding highway engineers and asphalt paving technologists will gather from the United States and Canada.

Mr. Boye said the highway program of the nation is being called on today to justify itself as never before. "Large revenues derived from the 'gas' tax are a constant temptation to the politicians and to the powerful lobbies which meet to divert them to other purposes. A sort of whispering campaign is circulating to the effect that we now have enough highways and that the tempo of highway building should be slowed down," he said.

"THE engineer is very much like the farmer in being distinctly an individualist and an engineering lobby is something practically unheard of. It is therefore exceedingly difficult to combat by an organized counter offense the subtle and continuing raids upon the highway program.

"The motorist, who in the last analysis pays the bulk of the highway tax, is strangely apathetic in defending his investment in the national highway system which has made all Americans neighbors. I hope that at every convention and at every organized demonstration, something will be done to resell good roads to the American people so that we may not go backward after having for so many years so brilliantly gone forward.

"Our highway system will never be completed, and it will never be safe to slow down our rate of progress because more cars, greater speeds, more concentration of population will always necessitate wider, straighter, safer roads, more miles of secondary or farm-to-market roads, rebuilding, resurfacing, and the sooner the American people realize that the conservation of their investment, the safety of their travel and the economical management of the highway program depends upon there being no let-up in highway building, the sooner we shall have attained and assured a stable prosperity."

Although the conference did not take up the matter of desired asphalt characteristics and did not enlarge on the need for correlating bituminous surface behavior with present day tests and specifications there was considerable discussion bordering on these problems which are of interest to the asphalt producer.

It was evident from the papers and discussions that bituminous highway construction has developed beyond a hit-or-miss proposition and must now be recognized as a highly specialized technical branch of engineering which endeavors to bring all factors governing successful highway construction into a harmonious equation.

Emphasis was laid on the need for extensive research on problems which have already appeared and particularly the correlation of such research between the various states. In this connection, the committee on bibliography pointed to the need for a complete record and annotation of articles on bituminous road construction.

Considerable discussion was given to the matter of constructing high-grade bases under bituminous mats. This resulted with the realization good bituminous surfacing will fail if laid over improperly constructed sub-grades and that public acceptance of asphalt type highways is consequently jeopardized through no fault of the surfacing material.

Greater need for co-ordination between design and construction departments as a means of preventing unconformities between base and surface was seen to have considerable merit and engineers of several states recommended field trips by the design engineer before the road was planned.

In an analysis of correct base design and practical construction considerations, it was brought out that the proper thickness of bituminous mats is still a matter of opinion with a tendency generally noted to avoid extremes. The average mat thickness used today was indicated at about two inches with the trend ranging from one to three inches.

While the trend to cutbacks seems to be continuing, for reasons originally advanced in favor of these products and because of new advantages such as a better water resistance and non-skid texture, some problems have arisen in the use of cutbacks and hard asphalts.

At the fore in these problems is the matter of cracking of the surfaces. An unmistakable trend toward the use of softer asphalts to achieve more durable performance of pavements was noted by J. E. Buchanan, Asphalt Institute engineer, in discussing fundamentals in the selection of bituminous materials and design of bitminous mats.

In general the order of preference for bituminous materials to achieve weather resistance and to provide durability was declared to be (1) asphalt cement (2) RC's (3) MC's (4) SC's.

Concerning the trend toward softer asphalts, especially in hot-laid pavements, it was pointed out that analysis of roads in use for a period of years showed sharp reductions in penetration. Asphalt of 56 penetration used in a pavement laid in 1934 was found to have hardened to 12 penetration. In another surface the asphalt hardened from 41-58 penetration to 3 penetration since 1923, and still another changed from 57 to 19 penetration in one year.

IT WAS believed that progress reports of relative performance and changes in penetration on hot-laid experimental pavement constructed on U. S. Highway 99 south of Bakersfield, Calif. will be valuable in an analysis of this problem. This test is asphaltic concrete using 50-60, 76, 110, 160 and 200-350 (90-95 road oil) penetration asphalts.

There was considerable interest in the increasing use in the West of plant mixes using 95 plus (150-200 penetration) asphalt and 90-95 (200-350 penetration) asphalt. It was thought that as softer asphalts are used, mixing temperatures may be lowered, with an apparent reduction in hardening of asphalt during construction and the likelihood that a greater margin will be provided against age hardening and cracking in service.

This same summary on fundamentals also pointed to developments in an intensive study of bitumen-aggregate adhesion for the purpose of arriving at methods to aid in selecting bituminous materials to resist moisture and weathering. However, there is a difference of opinion as to how tests for these properties shall be made and interpreted.

Kansas was reported working on a thin-film exposure test and Dr. Winterkorn of Missouri reviewed for the committee the present status of this problem and analyzed the factors which govern bitumen-aggregate adhesion, test methods and primers or addition of substances to promote better adhesiveness where needed.

He pointed out that since most roads are exposed to the influence of moisture, affinity of aggregate and filler for bitumen has to be compared with that for water. He emphasized the importance of the chemical character of both aggregate and bitumen, and with regard to the question of asphalts of high or low asphaltene content, he said that asphaltenes are generally appreciated as an important binder constituent with beneficial effect on adhesion.

It was suggested that caution be exercised in use of chemical adhesion tests pending further study. Adhesion, as a

Some Facts and Figures on Road Materials in 1936

(Figures from U. S. Bureau of Mines)

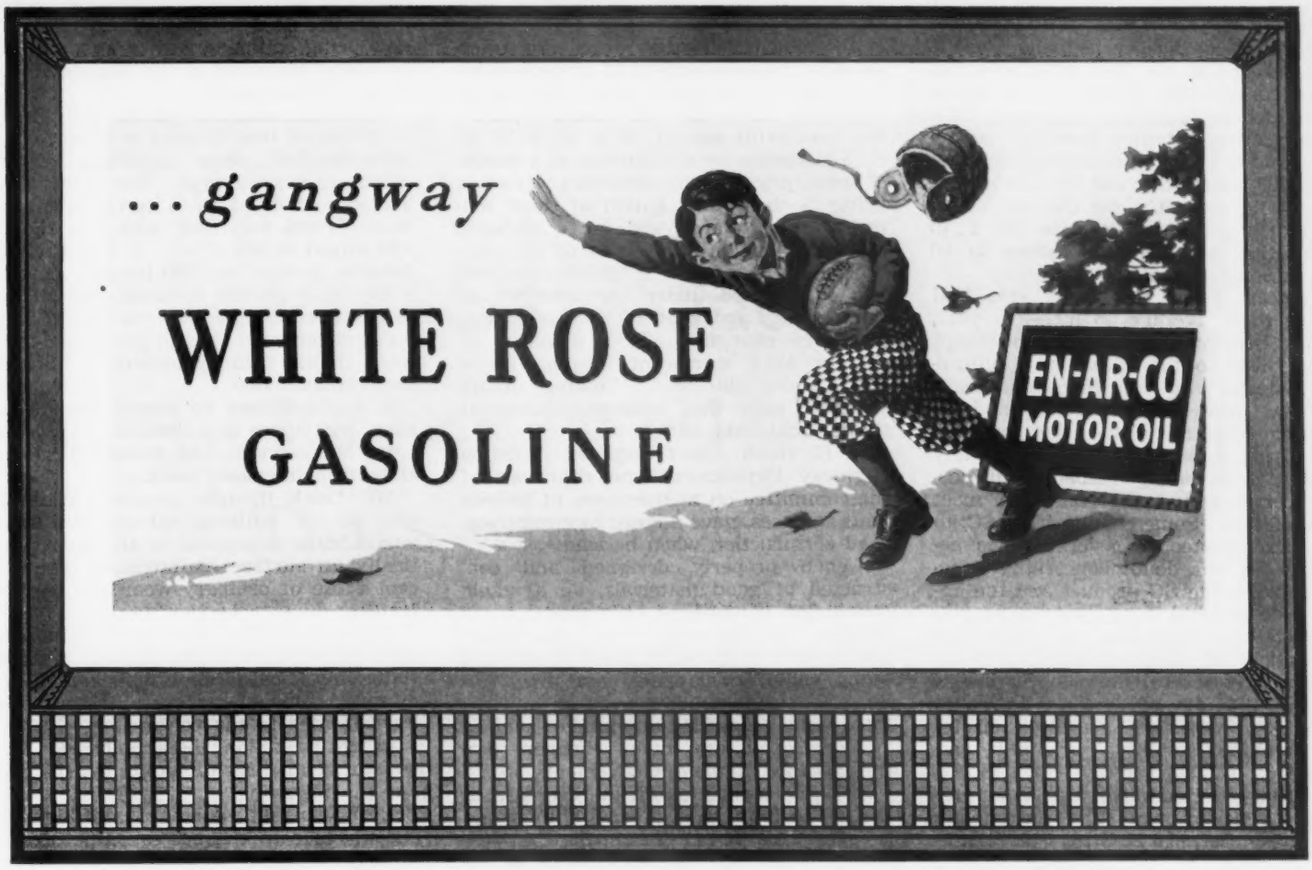
Petroleum Asphalt domestic demand..... 22,185,000 barrels (1936)
Petroleum Asphalt domestic demand..... 15,652,000 barrels (1935)
Stocks of Asphalt held at refineries in U. S. at end of 1936..... 364,199 short tons
Asphalt production at U. S. Refineries.... 4,186,100 short tons

Road Materials Sold at U. S. Refineries in 1936

	Volume Short Tons	Value
Asphalt for paving.....	607,388	$6,115,636†
Asphalt for paving.....	583,317	6,108,086*
Cut-back asphalts.....	584,973	5,762,565†
Cut-back asphalts.....	436,317	4,766,724*
Flux for paving.....	129,997	661,147†
Flux for paving.....	123,934	666,657*
Road oils	7,639,615‡	9,435,808†
Road oils	617,079‡	991,400*

†—from domestic crude.
*—from foreign crude.
‡—barrels.

Nearly three-fifths of the petroleum asphalt sold in the United States in 1936 was used to surface streets and highways, according to the U. S. Bureau of Mines.



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. . . he has been brought to life on thousands of full sized Poster Billboards on city streets, and along main highways—featured in farm papers—adding punch to a great array of dealer helps—tying right up with the famous Boy and Slate sign.

The swing to White Rose and En-ar-co is the sensation of 1937 . . . for this En-ar-co co-operation, makes En-ar-co the real profit line for distributor and dealer alike. If *you* want to make more money, write us for the details of our liberal distributor policy, and how you can get the mammoth Boy and Slate sign with its ever changing sayings.

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Indianapolis, Ind.	Mankato, Minn.	Memphis, Tenn.
Dubuque, Ia.	Kansas City, Mo.	Oklahoma City, Okla.

WHITE ROSE GASOLINE • WHITE ROSE ETHYL
EN-AR-CO and EN-AR-CO PENN MOTOR OIL

rule, was found to increase with time and it was also indicated that bonding strength is roughly proportional to consistency.

On behalf of harder asphalts, conclusions reached in the field in some states pointed toward the desirability of selecting harder asphalts for improving bitumen-aggregate adhesion factors. Oregon was found to be using asphalt cements of 120 to 200 penetration and RC's in preference to MC's or SC's for climatic conditions varying from —50° F. to 110° F. in temperature and from 5 inches to 80 inches annual precipitation.

Engineers from Mississippi said that rainfall there average 55 inches a year, equally distributed over a nine-month period. Due to this situation a bituminous material with emulsifiable characteristics has proven unsatisfactory and, as a consequence, the slow-curing and medium-curing cutbacks are not used to any extent. Rapid-curing cutbacks and asphalt cements find preference to meet this condition. Some change from SC_2 to MC_2 was reported in several states because there was doubt concerning adhesion between the SC product and the aggregate to be used.

While there has been no particular clarification of proportioning methods, comments by several highway engineers indicated the aim of mixture design is away from maximum stability and toward combined stability, workability and durability.

Discussing the matter of hardening and cracking tendencies of some bituminous roads today, Bernard E. Gray, Chief Highway Engineer, The Asphalt Institute, said that 25 years ago asphalt cement was fluxed to some extent. Today, the straight product is generally used in an unfluxed condition and is heated at much higher temperatures. He believed this had a hardening effect equivalent to 10 years.

He pointed to difference in traffic action on pavement today compared with 25 years ago when steel-tired wheels completed the rolling action and did not tend to pull the pavement up as is the case with high speed balloon tires. Another factor which it was thought might have reduced cracking in the early days of motor cars was these vehicles leaked considerable quantities of oil which dropped on the pavement and furnished a new supply of cover material.

Assembled delegates were also interested in the development of procedure for treatment of shoulders along side the bituminous mat. Several states reported the successful use of MC-1 or MC-2 or SC-5 in successive applications as a means of water-proofing the shoulders. Iowa is using ¼ to ¾ of a gallon of these materials per square yard for a distance of 4 to 5 feet on either side of the mat.

One speaker said a prime coat of MC-1 was used under the shoulder in some states and that there was a tendency to change to RC-2 material or heavier as a means of keeping water from under the mat. Testing of all shoulder soils was indicated to see if they would take oil.

H. H. Houk, Chief Engineer Alabama Highway Department and chairman of the committee on maintenance of bituminous surfaces, gave a boost to bituminous road construction when he said:

"When properly designed and constructed of good materials, on a stable foundation, a number of the proven types (bituminous low cost roads) are economical in first cost and in obsolescence and many engineers now feel that they can be maintained and improved at far less total annual cost than any kind of surface yet developed, and much cheaper than the so-called high-type pavements."

He also commented on the decrease in the use of bitumen seal coats without aggregate or cover material in the East—although continued to some extent in the West because of the difference in climatic conditions. Attention was drawn to the use of seal coats to strengthen and thicken the mat and to provide non-skid texture.

In this respect Mr. Houk said "There has been much effective treating of slick, slippery surfaces in the interest of safety, and many sections have clearly demonstrated that a bituminous surface can be built close and tight enough to resist the action of high speed, low pressure tires, yet open enough to provide a safe, non-skid surface, and so maintained."

He said the trend is increasingly toward the use of pre-mixed material for patching, sealing and retreading. Where plants are used for pre-mixing, many are now being equipped with driers, especially where moisture in the aggregate has proved troublesome.

In the discussion on patching technique it developed that Oregon is using a portable asphalt plant consisting of two drums of concrete type. The aggregate is heated and dried by a torch in one of these drums and then added to the oil and mixed in the other. It was declared possible to turn out 150 tons of material a day at a greatly reduced cost. These plants were designed by the state's highway department to improve patching work in the field by making a hot mix material available.

It was indicated by papers and discussions that there is a definite trend away from MC asphalts and toward SC materials in maintenance work.

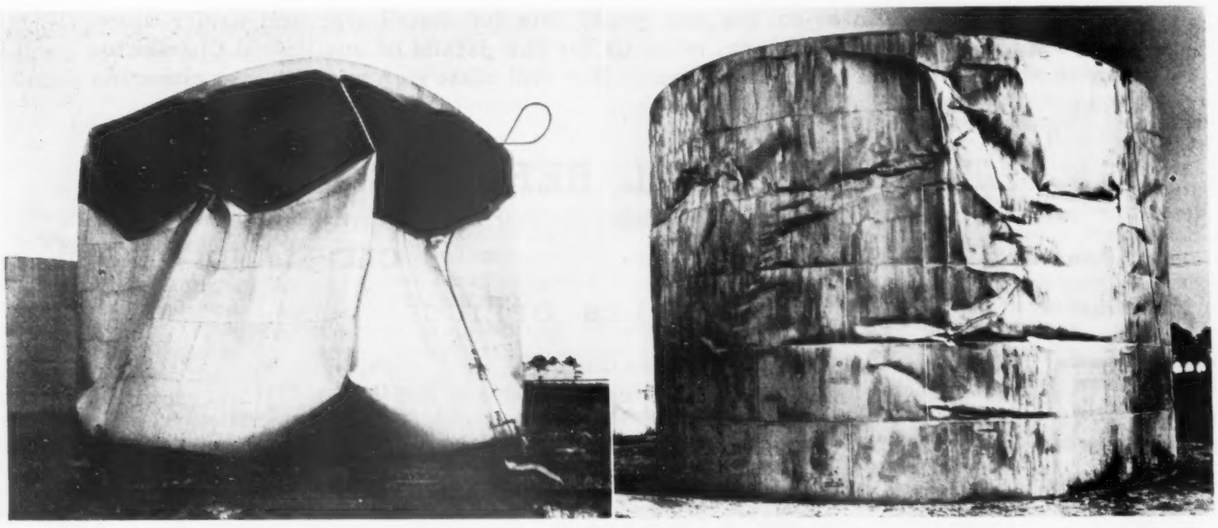
Mr. Houk thought progress made in the art of building bituminous roads would make it possible to eliminate practically all surface maintenance costs except those of ordinary wear and tear by traffic.

Recognition that successful bituminous road practice, in all its phases, can continue only if based upon facts established by sound, fundamental research was given by delegates to the conference.

In closing action, the appointment of a committee of three was approved to carry out the following:

1. To transmit to and acquaint highway executives with the necessity and desirability of assisting the Highway Research Board, and other agencies in stimulating fundamental research and in assembling, analyzing and disseminating such research data.

2. To formulate a plan of procedure which will be presented for consideration at the 1938 assembly, which it is now planned to hold in some mid-western city —probably St. Louis or New Orleans—in October of that year. As was the case this year, the 1938 meet will be held under the joint sponsorship of the Montana Highway Department and the Western Petroleum Refiners Ass'n.



Here's what happened when rain fell during a steam clean out of an oil tank. The sucked-in effect was remedied as shown on the right by water pressure. In the shell of the tank, lap joints had been used throughout and all seams were welded. No damage was done to any of the welds, it was reported by National Electrical Mfrs. Assn., Pittsburgh, although the parent metal had been split in several places and had to be repaired by welding— Courtesy STEEL, Sept. 6

Says He—

"It's just the old oil"

That's what you are likely to hear from the motorist if you tell him yours is the "best" gasoline

And he doesn't mean motor oil

Tell him it's Dubbscracked gasoline—tell him why it's better and he is interested He tries it He finds out for himself that it IS better

And you have made another steady customer

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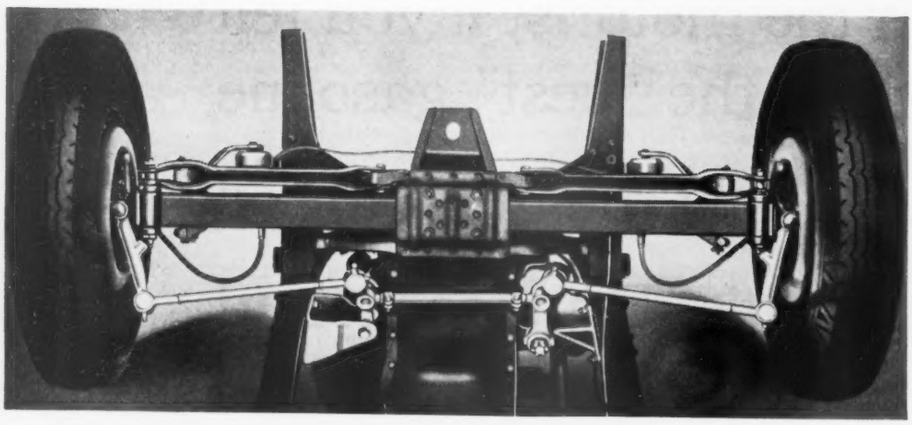
Chicago, Illinois

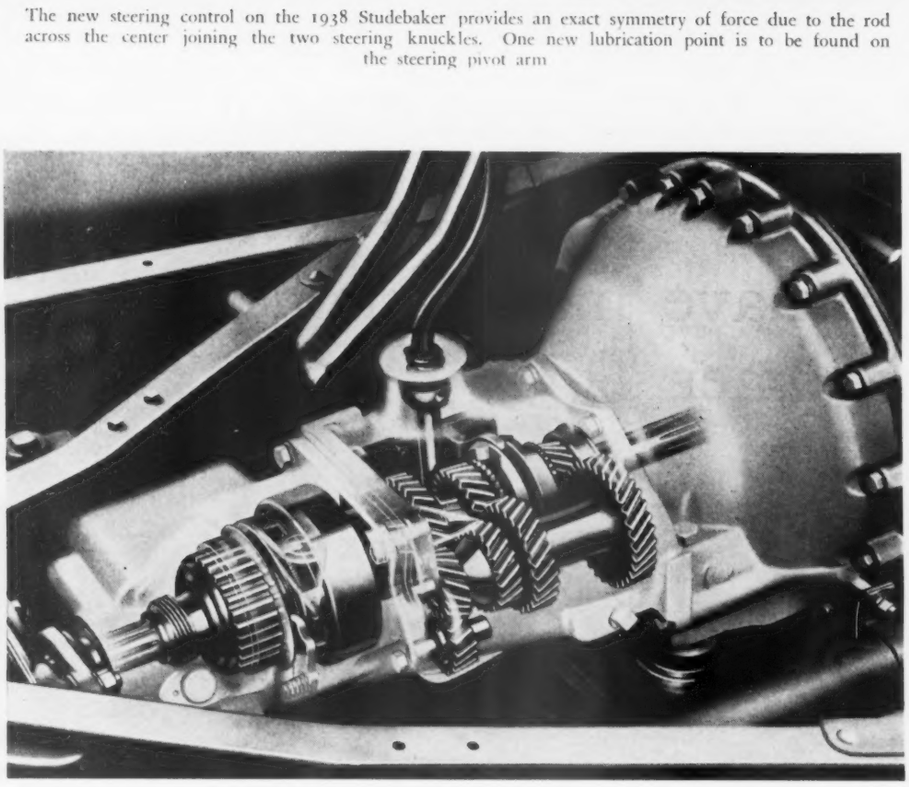
Dubbs Cracking Process
Owner and Licensor

THE 1938 STUDEBAKER . . .

Filter-Equipped, Recommends Seasonal Oil Change...Continues Use of Hypoid Rear Axles



The new steering control on the 1938 Studebaker provides an exact symmetry of force due to the rod across the center joining the two steering knuckles. One new lubrication point is to be found on the steering pivot arm



The transmission in the 1938 Studebaker has been turned on its side, thus reducing the vertical height of the unit from a former 10⅜ inches, down to 7 inches. This change greatly reduces the height of the tunnel necessary in the front compartment

By **JOHN W. THOMPSON**
N. P. N. Staff Writer

STUDEBAKER enters 1938 with three cars—the President Eight, the Commander Six, and the Studebaker Six. The latter two models are identical with the exception of certain optional features which are available only to the Commander and the President.

Studebaker, in its 1938 specifications, is equipping all its models with an external oil filter, now with a deeper cartridge, which, it is claimed, makes an oil drain necessary only for seasonal changes, provided the oil filter cartridge is replaced when the dip-stick shows the oil to be dirty.*

With all 1938 models equipped with hypoid rear axles, Studebaker continues with its recommendation of last year by specifying a Studebaker hypoid lubricant only for this point.

The water pump on the President engine has been moved to the front of the block, and the inlet to the oil pump is now on a pivot so that it always takes oil from the top. The automatic chokes of all 1938 Studebaker engines are mounted directly on the carburetor, eliminating choke linkage. All engines have aluminum alloy tin plated pistons to provide a safeguard against scuffing in extremely cold weather. A water distributing manifold which delivers cold water directly to the valve seats has been incorporated in the President engine. The Commander engine, which is identical to the Studebaker Six, has increased its former bore of 3¼ inches, to 3 5/16, thereby boosting its horsepower to 90 at 3400 rpm. The President engine has been moved forward 3½ inches, and a new aero-type carburetor is used on this model.

New on the Studebaker this year, and offered as optional equipment on the President and Commander, is the vacuum-operated gear shift which is manipulated from the instrument panel, leaving the floor unobstructed.

This control uses the engine manifold

*The type of oil filter used on Studebaker models was discussed in detail in an article in the Aug. 25th issue of N. P. N., and an article in the Sept. 15th issue discussed the oil industry's point of view on the so-called "seasonal" oil changes.

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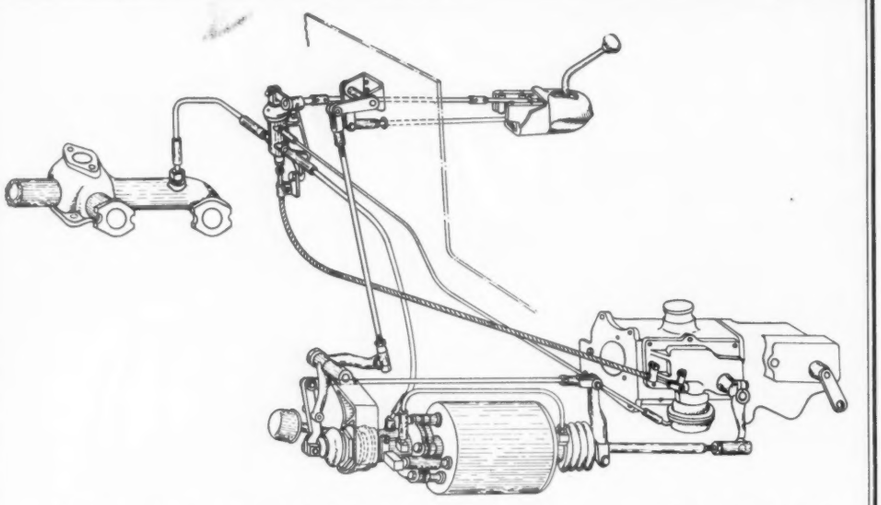

A schematic view of the new Studebaker vacuum transmission control. The short shift lever, shown at the top right, is located just beneath the instrument board. The exhaust manifold, from which the vacuum power is derived, is shown at the upper left. The vacuum booster is indicated at the bottom center, and the transmission at the bottom right

vacuum to actuate the transmission gear changes. A small shift lever, extending from beneath the instrument panel, does the shifting job. The obvious advantages claimed are a decrease in gear shifting effort and complete freedom from levers in the front compartment floor.

Shifting with this device can be done quickly or slowly, such control being made possible because of a balanced valve construction through the medium of a "walking beam," which prevents the vacuum cylinder from working ahead of the control lever. The vacuum-operated shift also includes a mechanical hook-up which permits a manual gear shift with the same lever should it be necessary to shift the gears without starting the engine.

By simply turning the transmission case on its side, Studebaker engineers have been able to reduce the vertical height of this unit to 7 inches, instead of 10⅜ inches as in the former design. This permits a decrease in the height of the tunnel in the front compartment.

Dual steering arm controls are incorporated in the steering mechanism of the new models. A re-location of steering pivot points has achieved a closer harmony between the front wheel action, and spring and steering control. The steering gear arm is connected by a tie rod to a similar arm, which is pivot-mounted to a rigid frame bracket on the chassis frame. Both arms have identical motion and are directly connected by reach rods to their respective steering knuckle arms. There is an increase of only one lubrication point over the steering mechanism of the 1937 Studebakers.

The Studebaker front wheel planar suspension continues unchanged in principle for 1938, with the exception that it will now be standard equipment on all models. The conventional front springing on the low priced model last year has been discontinued.

The "hill-holder," introduced by Studebaker two years ago, will be continued in 1938 as standard equipment on the President and Commander, and optional on the Six.

The overdrive, of the type used as optional equipment on the Dictator model in 1937, will be offered as optional equipment on the 1938 President and Commander models. It is available with free wheeling and may be cut in at speeds from 40 to 45 miles per hour.

Engine oil specifications, with slight exceptions, are similar to those of last year. Where in 1937 an SAE 10 engine oil was recommended for 10 degrees F. and below, in 1938 it is specified at 0 degrees or below. Where formerly 10 degrees was the lower limit for the SAE 20 bracket, the recommendations now state this grade of oil should be used between 0 degrees and 45 degrees. The remaining crankcase oil specifications are unchanged from 1937, with an SAE 30 recommended between 45 and 90 degrees, and an SAE 40 above 90 degrees for "high speed and hard pulling operation only."

The conventional transmission, which last year required an SAE 70 and 50 engine oil for summer and winter respectively, has now been changed to take an SAE 90 gear lubricant all year round. The transmission with overdrive continues with a similar lubrication requirement to last year's, namely, an SAE 70 engine oil for summer, and SAE 50 for winter.

The rear axle, as mentioned earlier in this article, is again of the hypoid type on all models. Studebaker recommends that only a Studebaker Special Hypoid Lubricant be used, which is a continuation of its 1937 policy on hypoid lubricants.

The universal joints on the Commander and the Six are rubber insulated, similar to those used on the Dictator in 1937, and require no lubrication attention. On the President model, the two universal joints each require a pressure gun lubricant every 10,000 miles, while the propeller shaft spline takes a similar lubricant every 1000 miles.

The speedometer cable takes an SAE 90 lubricant every 10,000 miles, instead of an SAE 110, as formerly. The clutch pedal linkage is to be lubricated with an SAE 30 engine oil on all models, instead of an SAE 110, as was recommended in 1937.

Instead of an SAE 110 gear lubricant every 1000 miles, the spring shackles now require a pressure gun lubricant, and the fan on the President model now takes a pressure gun lubricant instead of an SAE 20 which was required last year.

Some changes are to be noted in the redesigned steering mechanism. A new point is to be found on the steering pivot arm on all models, which takes a pressure gun lubricant every 1000 miles. The outer bearing of each steering knuckle support arm, also a 1000-mile point, now takes a pressure gun lubricant instead of an SAE 110 gear lubricant. The same is true of the steering knuckles.

No lubrication difficulties are to be found in the vacuum-operated transmission shifting mechanism, the points being limited to the oiling of the simple linkage points.

Crankcase capacities remain the same, with 8 quarts for the President, and 5½ quarts for the two Sixes. The conventional transmission capacity of the Six models remains at 2½ pints, while on the President it has been reduced from 3 to 2½ pints. The capacity of the transmission with overdrive has been reduced from 6 to 4 pints on the Six models, and from 4½ to 4 pints on the President. The rear axle capacity on all models is now 3 pints, the President having been reduced from a former 3½ pints. The cooling system capacity on the Sixes has been increased by one to 14 quarts, and by a similar amount on the President to 17 quarts. Gasoline tank capacity remains the same as before on all models, at 18 gallons.

The new car design is supplied with a lift-top hood, similar to the type used in 1937.

Humble Develops Subdivision For Employes

TULSA—The number of Humble Oil & Refining Co. employes at Baytown (30 miles southeast of Houston) desiring to own their own homes far exceeded the number of lots remaining in the East Baytown subdivision which the company purchased, developed and made available to its employes on an easy payment plan. So in fairness to all a drawing was held to determine the order in which employes would be given a chance to buy.

As described in the Aug. 26 issue of the BEE, company publication, the names of all applicants, which had been written on small cards, were placed in a large can and thoroughly mixed. The cards were then drawn one at a time and recorded. First name drawn was placed on the list as No. 1, the second as No. 2, and so on until a number of names to correspond with number of homesites available had been withdrawn and numbered.

The employe whose name was chosen first had first choice in selecting a homesite, and so on down the list. Each one was given 24 hours to select the site of his choice, with those not wishing to purchase being dropped after 24 hours and the next employe in order given his choice. Special provision was made for applicants who happened to be on vacation at time of the drawing. If such an applicant's name was drawn, selection and sale of sites was held up until such time as the employe returned and was given notice and 24 hours in which to make his selection.

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ICE SERVICE STATION
BLOCK ICE and ICE CUBES

This is America's No. 1—so far as the City Ice & Fuel Co. of Cleveland knows—gasoline station to sell ice cubes. Most of the ice sold from this station was used by the purchasers to supplement the ice cubes made in their home refrigerators. This particular unit cost the ice company over $350, will hold 1750 pounds of ice and 300 pounds of ice cubes. The station where the cube ice dispensing unit was installed changed hands soon thereafter and the new management did not continue the ice business

OIL and water won't mix, but gasoline and ice will—sometimes.

A survey among filling stations in the Cleveland area and an interview with the City Ice & Fuel Co., operating in 65 cities in 28 states, to determine if it is profitable to sell ice at gasoline outlets, brought both yes and no answers.

Factors which make handling of both ice and petroleum products feasible are the economy of labor and the convenient, neighborhood location of stations. In the majority of cases the station operators also handle the sales of ice and no actual additional outlay for labor is necessary. Many ice-filling stations are manned by father and son. At stations doing an unusually heavy week-end business, it is sometimes found necessary to hire extra help on Saturdays. In many cases a boy will do. This labor advantage is the chief economic reason for considering joint operation of filling station and ice outlets. If it is not possible for the gasoline station personnel to man the ice house and additional help has to be hired, the advisability of the ice house immediately becomes highly questionable, dealers said.

It's kids with coaster wagons and adults shopping in neighborhood stores that purchase ice, so that filling stations catering to neighborhood trade were found to sell the greatest amounts of ice.

Standard Oil Co. of Ohio formerly sold ice at some of its outlets, but does not do so at present at company-operated stations. No official explanation was forthcoming on this change of policy, but a vice president of the company said he felt that the one-stop super station would survive in the competitive retail market, and not the station that adds laundry and dry cleaning collection services, candy counters, ice houses and what not as sidelines. This attitude was reflected by other majors, plus the remark that the volume of ice business would hardly stand dilution among any great number of outlets.

Thus while ice is definitely ruled out of super-service, transient business stations, at least in Cleveland, some neighborhood stations have been able to profit on the household need for ice. The extent of this profit depends on such factors as location of competing stations, presence of peddler companies in the neighborhood and general trend of the ice business. Nearly every dealer questioned, who had been in business four years or more, said that his ice trade was declining as a result of customers buying electric refrigerators, but not one said that his business had dropped to an unprofitable level.

A Fleet Wing dealer who has sold ice and gasoline for 10 years, expressed it this way, "While formerly we sold 50 blocks on Saturday (350 pounds per block), we now sell 35 blocks."

While obviously volume of ice sold at service stations depends largely upon climatic conditions, service stations in the Cleveland area in the season just completed averaged sales of from 45 to 500 tons of ice, bringing a return of $2 a ton or from $90 to as high as $1000 for the year.

Most of the 500-ton stations are operated by the City Ice & Fuel Co. itself, and gasoline stations are located on adjoining property. Reasons for higher sales at company-operated ice houses are the same as those that account for advantages of company-operation over the Iowa Plan. Cleanliness of appearance, merchandising enterprise and supervision are as great factors in ice as in oil. Further, many of the desirable sites were originally owned by the ice company and later leased by oil companies. That is, ice came first, and the station afterwards.

IN this connection, one oil company has leased sites and erected stations at the gateways to the three plants of the ice concern. The servicing and supplying of the ice company's fleet is handled as a commercial account by the oil company.

Conversely, some oil companies here have subleased part of their frontage to an ice company. Thus while the ice business is not handled directly, the income for the property as a whole is increased.

The ice-gasoline dealer can not charge more for ice than the posted price at the ice company's own outlets. This varies considerably in different localities. In Cleveland ice retails for 11, 22 and 44 cents for 25, 50 and 100 pounds respectively. This ice wholesales in blocks of 350 pounds each at $1.05 ($1.15 if the ice company delivers to the station). At current prices the margin per block is 49 cents, about $2.85 ton gross. Expense to be deducted from the gross include shrinkage, rental on the ice house, cost of cooling the ice house and—arbitrarily—labor.

Scored 350-pound blocks manufactured by City Ice actually weigh around 375 pounds so that the company absorbs some of the shrinkage cost. Dealers reported that shrinkage cost depended primarily upon careful week-end buying. One dealer reported it was profitable for him to electrically cool his ice house at a cost of $16 a month. In many cases the ice company donates rock salt and scrap ice to

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CITIES SERVICE OILS AND GASOLENES

cool the boxes; some dealers allow the merchandise itself to cool the storage house.

If the ice house is the property of the ice company, as is usually the case, it is usually leased to the service station operator. Sometimes it is donated by the company, which may or may not pay moving charges. Rentals here are usually free or not more than $25 per year.

A survey among gasoline-ice dealers in Cleveland revealed that neighborhood stations sold from two blocks to 30 blocks on a daily average during the summer season. Surprisingly enough, the high and low stations were within a few blocks of one another in a substantial foreign neighborhood. Physically, the low volume station was much better in appearance and on more desirable property. The lessee had been established only a year, however. He said he would discontinue the ice house as unprofitable as this season closed. The other station, which sells 200 blocks a week in hot weather, according to the proprietor, has been established in the neighborhood for 12 years. The ice house has been operated for ten. A most congenial Syrian family of 12 owns the station, four brothers being the actual operators. They have built up a solid neighborhood business and operate a garage and the ice house in connection with the service station.

The station, although busy, is most unpretentious and reveals the gradual steps of its growth. In a few weeks, however, new buildings will be constructed to become the finest appearing Fleet Wing station on the east side of Cleveland.

Of gross sales of nearly $100 a week in the 3 warmest months, the brothers estimate shrinkage at $10 and truck hauling expense at $5. Incidental expenses, aside from labor, they listed at $16 a week. Rental is about $25 a season.

This record was most unusual, however. Two other stations in similar neighborhoods reported $40 a week and $400 for the season.

The majority of service stations handling ice reported volumes centering around 100 blocks per week. The gross take is $2.85 a ton, but the profit is figured by dealers and company ice company alike at about $2 a ton. At 100 blocks this is $35 a week or $350 to $400 for the season.

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NEW PATENTS

Compiled by R. E. Burnham, patent and trademark attorney, 511 Eleventh Street, N. W., Washington, D. C., from whom copies may be obtained at the rate of 25c each. State number of patent and name of inventor when ordering.

July 13, 1937

REFINING

Process for dewaxing oil—Harmon F. Fisher, Los Angeles, Calif., assignor to Union Oil Co. Filed Aug. 21, 1933. No. 2,086,666.

Method of converting hydrocarbon compounds—Albert P. Sachs, New York, N. Y., assignor to Petroleum Conversion Corp. Filed Apr. 4, 1935. No. 2,086,741.

Oil reclaiming apparatus—Elmer D. Bradford, Denver, Colo., assignor to Kramlich-Bradford Mfg. Co., same place. Filed Jan. 11, 1934. No. 2,086,763.

Fractionator control device—Floyd L. Kallam, Huntington Park, Calif. Filed Dec. 22, 1933. No. 2,086,808.

Treatment of hydrocarbon oils—Walter A. Schulze, Bartlesville, Okla., assignor to Phillips Petroleum Co. Filed June 20, 1935. No. 2,087,048.

MISCELLANEOUS

Method of manufacturing ketens—Karl T. Steik, Elizabeth, N. J., assignor to Standard Oil Development Co. Filed Aug. 29, 1930. No. 2,086,582.

Motor fuel—Jones I. Wasson, Elizabeth, N. J., assignor to Standard Oil Development Co. Filed Apr. 20, 1933. No. 2,086,589.

Gauging construction for tanks—Ernest L. Staber, New York, N. Y., assignor to Socony-Vacuum Oil Co. Filed Jan. 26, 1934. No. 2,086,645.

Recovery of hydrocyanic acid, and process and products relating to recovery of HCN—Russell W. Millar and Herbert P. A. Groll, Berkeley, Calif., assignors to Shell Development Co. Filed June 28, 1933, and Mar. 2, 1936. Nos. 2,086,731 and 2,086,732.

Method and apparatus for comparing oils—Maxwell B. Jester, Chicago, Ill., assignor to Calumet Refining Co. Filed June 1, 1936. No. 2,086,771.

Driving journal compound—Williiam P. Hilliker, Hammond, Ind., assignor to Standard Oil Co. (Ind.). Filed Mar. 13, 1935. No. 2,086,870.

New Equipment
And the Manufacturer

New Exide Chargers

As a part of its "Easy Does It" program to facilitate the battery business for its dealers, Exide announces a new line of battery chargers, including deluxe and standard models with built-in Exide Sure-Start testers, a complete line of utility chargers for either wall or floor mounting, and a mobile type of tester.

The deluxe model provides charging positions for six batteries, and occupies less than four square feet of floor space. An extension rack is available to provide six additional charging positions, so that 12 batteries may be charged simultaneously.

On the standard model the charger is built into the rack instead of being located on top as in the deluxe models. Only the six-battery charger at six amperes is available in this standard model.

* * *

Johnson Is Promoted

William B. Johnson, Jr., Pittsburgh district sales manager for Erie Meter Systems, Inc., has been promoted to general assistant sales manager for this company. He is well known to oil men in southwestern Pennsylvania, West Virginia, and southeastern Ohio, and has had more than eight years' sales experience with the Erie company.

* * *

Tank Equipment

Shand and Jurs Co., Berkeley, Cal., announces completion of a new 98-page catalog covering its complete line of storage tank conservation equipment. It is entitled Catalog 52-C.

* * *

Oil Testing Instruments

A 72-page book entitled "Oil Testing Instruments" and designated as Catalog No. 10-NP is announced by the American Instrument Co. of Silver Spring, Maryland. It presents information on the latest developments in the company's instruments for testing petroleum and its derivatives, compounds, asphalt, etc. The line is comprehensive and includes instruments designed and built in accordance with the requirements of the A.S.T.M., other accepted standards, also special instruments for every oil testing laboratory need.

This book is available without charge upon application on business stationery.

* * *

Insulation

A new edition of the 68-page insulation booklet, "Barriers to Industrial Waste," has been published by Johns-Manville. Tables of recommendations for selection of J-M insulations for a wide variety of uses are contained in the booklet.

* * *

Rubber Springs

"Rubber Springs," a paper on design calculations and representative uses of rubber springs, has been reprinted in booklet for general distribution by United States Rubber Products, Inc., New York. The paper was originally presented at the annual meeting of the American Society of Mechanical Engineers by W. C. Keyes, engineer for the company and was published in the May issue of Mechanical Engineering.

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(Guests are further extended an invitation to attend the Convention Sessions where addresses will be delivered by persons of national prominence).

Ed Bossman, a Gulf dealer, running Ed's Service Station, on Noble Rd., in East Cleveland, is serving a customer from the first of a type of electric beverage cooler made by the General Electric. It was installed at his station to test the cost of current to operate it

Test Cost of Current For Beverage Cooler

CLEVELAND

WHEN the General Electric Co. wanted to find out what it would cost to operate an electric beverage cooler at a gasoline station, they simply attached a meter to the cooler in Ed's Service Station, across the street from GE's Nela Park plant on Noble Rd., in Cleveland.

The meter was installed Aug. 27, 1937, and a reading taken at the same time of day on Sept. 8. During the twelve days the box, known as GE's TM-33, consumed 22.1 kilowatt hours. The commercial rate is 4 cents per kilowatt hour, or a total cost of 88.4 cents for the 12-day period, an average of 7.36 cents per day.

This operating cost occurred during a hot spell, the average temperature for the period being 72.8 degrees Fahr., while the average in Cleveland for the summer months of June, July and August is 69 degrees. At that the weather bureau is atop a 20-story building, while the beverage cooler is on a concrete driveway exposed to the sun.

Edward Bossman, the proprietor, drained and filled his cooler once during the test period, which increased the cost. The current which cost Bossman seven and one-third cents a day accomplished an amount of cooling equivalent to the melting of 50 pounds of ice daily, GE officials said. Fifty pounds of ice retails for 22 cents in Cleveland—a daily cost of 14.64 cents above the electric bill. Fifteen cents a day is $15 a season in this part of the country, so whether or not the higher initial cost of the electric cooler over the ice box is justified depends on the volume of beverage sales and on intangible benefits such as uniform temperature and elimination of necessity of servicing the box daily, and so on.

The initial cost of the cooler of the type installed in Ed's Service Station delivered in Cleveland is $153.50. The gallonage at his station was about 20,000 gallons for July and his sales figures reveal that he was selling soft drinks at a rate that would pay for the electric cooler in two seasons. Here's the way his sales actually worked out:

For the months of July and August, this year, during which the cooler was installed, Bossman averaged 51 cases per month, his sales slips show. His gross profit on 17 of these cases was 55 cents per case, total $9.35. Profit on the other 34 cases was 40 cents, totaling $13.60, or a grand total of $22.95 gross per month. Since Bossman's breakage and damage to shells were negligible, his only direct expense was current to operate the box. (For purposes of the experiment GE donated the cooler). Subtracting from the monthly profit of $22.95 the cost of oper-

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ating the cooler of $2.28 (7.36 cents per day times 31 days) equals a net of $20.67 per month for July and August.

While actual sales figures are not available for the remainder of the season, it was estimated the volume during each of the months of May, June and September might be one-half that of August. On this basis profits in these beginning and end season months would total about $31. This would bring the season's profits to $72.34, or approximately half the cost of the cooler.

TRADEMARKS

The following are trade mark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Munsey Building, Washington, D. C., trademark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

Pub. September 7, 1937

HIMEPO, Ser. No. 393,952. International Lubricant Corporation, New Orleans, La. Filed June 11, 1937.

For Petroleum Products—Namely Lubricating Oils and Greases.

INLUCO, Ser. No. 393,953. International Lubricant Corporation, New Orleans, La. Filed June 11, 1937.

For Petroleum Products—Namely, Lubricating Oils and Greases.

TED, Ser. No. 393,956. International Lubricant Corporation, New Orleans, La. Filed June 11, 1937.

For Petroleum Products—Namely Lubricating Oils and Greases.

EX-CARBON, Ser. No. 394,230. Hickok Oil Corporation, Toledo, Ohio. Filed June 18, 1937.

For Fuel Oils and Lubricating Oils and Greases.

FIGHTS CARBON! Picture of a grotesque figure, Ser. No. 394,231. Hickok Oil Corporation, Toledo, Ohio. Filed June 18, 1937.

For Fuel Oils and Lubricating Oils and Greases.

DAPCO, Ser. No. 394,793. Julius Macsata, doing business as Diamond Automotive Products Company, Torrington, Conn. Filed July 2, 1937.

For Automotive Products—Namely, Anti-Rust Compound for Radiators, Radiator Cleaners, Stop Leak, and Anti-Freeze.

"FREEZFREEH," Ser. No. 394,522. W. H. Barber Company, Chicago. Filed June 26, 1937.

For Anti-Freeze Solution.

SO-CRE-SIL, Ser. No. 392,777. Socony-Vacuum Oil Company, Incorporated, New York, N. Y. Filed May 14, 1937.

For Disinfectant and Antiseptic.

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The book is of especial interest to station operators, repair men, fleet operators, motor oil salesmen, students, and in many cases to individual car and truck owners.

The book contains 75 figures, charts and illustrations, including many which explain the various functions motor oil performs in addition to lubricating the moving parts of the engine.

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Cites Achievements Of Oil Industry

N. P. N. News Bureau

NEW YORK, Sept. 20. — The outstanding achievements of the petroleum industry the past 15 years have been the sharp reduction in the price of its product and the marked increase in the return to labor, John A. Brown, president of the Socony-Vacuum Oil Co. stated today in a letter sent to stockholders receiving company dividend checks.

"The reduction in the price of gasoline in the past 15 years has been obscured by the increase in the tax placed upon it by federal, state and municipal governments," he added.

The actual price of gasoline, excluding taxes, is 42 per cent less than 15 years ago, he stated, but the total amount of taxes paid has increased approximately 32 times during that period. The amount per car was about $1.04 in 1922 and had increased to $33.60 in 1936, he said.

This reduction in selling prices was not done at the expense of labor, he stated, pointing out that average hourly wage rates of refinery employes have increased more than 50 per cent in the 15-year period. Figures taken from Socony's records show that the average hourly wages at an eastern refinery amounted to 67 cents in 1922 and $1.07 in 1937, he stated.

Ohio July 'Gas' Demand 8% Over July, 1936

COLUMBUS, O., Sept. 20.—Gasoline consumption in Ohio during July was 117,358,584 gallons, an increase of 8,833,049 gallons, or 8.139 per cent, over consumption in July a year ago, according to tax reports by wholesalers and dealers, the Ohio Petroleum Marketers Assn. reports.

During seven months of this year, consumption in Ohio totaled 703,417,413 gallons, an increase of 74,479,136 gallons, or 11.842 per cent, over demand in the corresponding period of last year. These gains in percentage are on a par with the average gain for the country the first six months this year, which was 11.40 per cent. The gain in June in the country over June a year ago was 8.91 per cent.

Oil Pioneer's Widow Dies

CALEDONIA, N. Y., Sept. 18.—Mrs. James C. Tennent, widow of James C. Tennent, an early Pennsylvania oil operator, died at her home here recently, following a brief illness. She was 80 years old.

Mrs. Tennent lived in Titusville, Pa., during the early oil days. Her parents and her husband knew many of the prominent oil men of the time, including John D. Rockefeller, John D. Archbold and Theodore Barnsdall.

A son, A. H. Tennent, is manager of The Oil Service Co., Cleveland. Five other sons, a daughter, a brother and ten grandchildren survive her.

How Exports Have Increased in Volume

WASHINGTON

UNITED States exports of petroleum products in July increased 50 per cent in value over those for July, 1936, according to figures compiled from records of the Bureau of Foreign and Domestic Commerce.

Exports during July of this year were valued at $32,528,750 compared with exports of $21,824,536 in July last year,. the figures show.

Only a small part of this increase in value is attributable to increased prices, as sizable volume increases were noted in exports of practically every petroleum product, as well as a gain of almost 40 per cent in crude petroleum exports.

The following table shows comparative exports of several major products in July, 1937 and July, 1936.

	July 1936		July 1937	
Product	Quantity (Bbls.)	Value	Quantity (Bbls.)	Value
Crude petroleum	4,457,506	$6,099,807	6,362,569	$9,197,580
Natural gasoline	44,968	86,602	132,820	401,932
Gasoline	2,056,088	5,035,722	2,460,170	6,719,457
Kerosine	474,057	1,001,643	1,083,816	2,382,671
Gas oil and distillate fuel oil	1,681,199	2,056,245	2,875,911	4,289,466
Residual fuel oil	581,359	495,687	1,095,236	1,014,076
Lub. oil (all types)	677,300	5,595,055	903,000	6,823,195

Chief customers for crude oil in July this year were Canada, 2,970,413 barrels; France, 1,034,716 barrels, and Japan 1,029,072 barrels. Last year these countries took 2,441,529 barrels, 309,523 barrels, and 1,121,370 barrels, respectively, which accounts for some of the increase in exports of crude.

Gasoline Buyers

Gasoline was sent in largest quantities in July this year to the United Kingdom (438,660 barrels; last year 436,072); Australia (311,947 barrels; last year 102,111); Russia, (270,432 barrels; last year none); Netherlands West Indies, (128,067 barrels; last year 97,776); New Zealand, (101,263 barrels; last 62); and Chile (99,737 barrels; last year 61,819).

Netherlands West Indies maintained in July its place as largest importer of American kerosine, taking 245,073 barrels, compared with 168,313 in July, 1936; Netherlands took 176,558 barrels this last July, compared with 51,151 in the same month last year; China imported 163,268 barrels, compared with 42,696 last year, and United Kingdom 119,879, compared with 102,746 last year.

Japanese Purchases

Japan's imports of U. S. gas oil and distillate fuel oil increased from 476,105 barrels in July last year to 660,266 barrels the same month this year; Netherlands' from 87,768 to 299,029; United Kingdom's from 119,286 to 337,924, and Netherlands West Indies from 168,313 to 659,656.

Exports of residual fuel to Japan, largest buyer, increased from 218,383 barrels in July, 1936 to 483,306 in July, 1937; to Belgium from nothing to 105,698 barrels, and to Chile from 120,057 barrels to 181,487.

United Kingdom continued as the best customer for American lubricating oil, taking a considerably larger volume in July this year than last.

In Selecting a Source of Supply . . .

for your lubricating oil requirements covering the year 1938, it is necessary to bear in mind the following dominant factors:

Reliability of supplier
Experience in meeting individual specifications
Desire to co-operate with purchaser

This company comes under all the requisites listed above. Our four refineries and seaboard barrelling plant offer their modern facilities to take care of your individual needs. We specialize in both winter and summer oils as well as bright stock, neutrals, and high flash steam refined stocks.

JAMES B. BERRY SONS' CO., INC. OIL CITY, PA.
Branch Offices: New York City; Chicago, Ill.; Boston, Mass.; Philadelphia, Pa.; Houston, Texas; London, England; Hamburg, Germany; The Hague, Holland.
Refineries: Oil City, Pa.; Emlenton, Pa.; Farmer's Valley, Pa.; St. Mary's, W. Va.
Ocean Terminals: Baltimore, Md.; Tiverton, R. I.; Dorchester, Mass.; Carteret, N.J.; Edgewater, N. J.; Glastonbury, Conn.; Philadelphia, Pa.
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There must be something on the ball!

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The way Independent Jobbers are accepting the complete line of Champlin products and staying with them through the years, shows Champlin does have something on the ball—Something to offer the Independent Jobber in the way of quality merchandise with public acceptance and a merchandising plan that boosts sales.

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CHAMPLIN PRODUCTS MAKE YOUR PROFITS

Markets

At A Glance . . .

Mid-Western: Gasoline still plentiful in resale market.

Pennsylvania: Wax prices down as demand subsides.

Mid-Continent: Natural gasoline prices continue upward trend.

Eastern Seaboard: Unsettled retail markets spread.

Gulf Coast: Light fuels and kerosine scarcer.

California: Foreign demand continues active.

Wax: Crude scale steadier as buying increases.

Mid-Western

Gasoline Quiet

N. P. N. News Bureau

CHICAGO, Sept. 20.—The oil trade in Chicago turned to the use of the L-3 method of determining octane rating, and by Sept. 18 the C.F.R. motor method had been virtually discarded, except where buyers still insisted on the old method of test.

Marketwise, the week ended Sept. 18 was featureless. Offerings of all grades were relatively free, and some shading of prices for the higher octane grades was reported.

Gasoline with close to 60 octane rating was freely offered at 4.75 cents last week. While this price has ruled for low octane gasoline for the past month or more, it has only been within the past week or so that the better grades of low octane met the competition provided by gasoline falling within the low end of the bracket.

Michigan straight run gasoline was reported freer by some refiners. Sales for out-of-state shipment generally were around 5 cents, f.o.b. refinery. For shipment within the lower peninsula, however, refiners asked 5.375 cents and up.

Kerosine both from southwestern and Michigan refineries was reported to be tighter last week. Prices, however, remained generally unchanged.

Pennsylvania

Wax Down 5 Points

N. P. N. News Bureau

CLEVELAND, Sept. 20.—Concern was expressed in the Pennsylvania market last week over the slow movement of bright stock, which was largely confined to inter-refinery channels. Any expected price or inventory change failed to materialize, with offerings to the trade continuing at 20 cents and up.

Kerosine shipments continued at a good pace. A number of refiners reported they were sold out for the balance of the month. Sizable quantities, however, were available in the lower field at 5.125 cents throughout the week. Good demand continued for other light products as well, 36-40 fuel oil being particularly active.

Wax dropped five points, reflecting a quieter New York market.

Mid-Continent

Natural Gasoline Up 0.25 Cent

N. P. N. News Bureau

TULSA, Sept. 20.—An inquiry from one large refiner for approximately 300 cars of Grade 26-70 natural gasoline, coupled with a general increase in demand from domestic refiners, caused a further tightening in that market in the Mid-Continent last week.

After offers to buy early in the week at 4.25 cents, f.o.b. Oklahoma, and 4.375 cents, f.o.b. Breckenridge, an advance of 0.125 cents over the previous week, bids were raised late in the week another 0.125 cent, with sales reported Sept. 18 at 4.375 cents, f.o.b. Oklahoma and 4.5 cents, f.o.b. Breckenridge.

Motor fuel demand was reported spotty last week. Several refiners said their gasolines were moving out well on contract, with perhaps some slowing up in spot demand. Others reported open market buying, particularly of third grade, had dropped somewhat. In East Texas, intrastate movement was reported better but interstate shipments were lighter and quotations were down 0.125 cent. Late in the week, however, reports were heard that a new buying order was in the field.

Meanwhile a majority of Oklahoma and Kansas refiners had worked out their schedules of prices for motor fuel under the L-3 test method and began quoting on that basis. Indications were Texas refiners would follow shortly.

Little change was noted in kerosine demand. Prices were steady with occasional reports of inter-refinery buying.

Refiners making lube oils indicated demand was good and stocks comparatively low.

N. P. N. Gasoline Index

	Dealer T.w. Cents per	Tank Car gal.
Sept. 20	10.70	6.72
Month ago	10.67	6.74
Year ago	10.29	6.23

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.

Tank car index is a weighted average of 13 wholesale markets for regular-grade gasoline.

Eastern

Gasoline Unsettled

N. P. N. News Bureau

NEW YORK, Sept. 20.—Open tank car gasoline markets were reported unsettled at some eastern seaboard terminals late the past week, particularly at New York harbor.

Reports that above 65 octane gasoline was being offered to jobbers at 7.50 cents a gallon were heard but could not be confirmed. While it was indicated by some traders that barge lots were available at 7.25 to 7.375 cents, f.o.b. New York and Baltimore, others said they were unable to find this material. One supplier, generally active in the open spot market, said his stock position was excellent and that he was moving above 65 octane to jobbers at 7.5 cents with no difficulty. He said his cost was no different now than it was before Labor Day and that the margin of profit was not excessive.

Retail gasoline markets in most New York City boroughs were higher. General reported postings for regular grade gasolines at the end of the week were five gallons for 98 cents, tax included, in boroughs of Manhattan and Bronx and six gallons for $1.11, tax included, in Brooklyn. These compare with previous prices of six gallons for 98 cents and 90 cents respectively.

Service station prices in the metropolitan New Jersey markets, however, were reported moving to lower levels as the week ended.

Coastal

Gas Oil Higher

N. P. N. News Bureau

NEW YORK, Sept. 20.—Higher prices for light fuel oils and kerosine prevailed at the Gulf Coast during the past week, as inquiries continued to come in for both prompt and deferred shipment.

Several buyers said they were having trouble locating cargoes of No. 2 fuel oil and export grades of gas oil. Either the suppliers were unable to supply the oil for the specific lifting date wanted, or their ideas of prices were out of line with what these buyers considered the going market, accounting for the lack

REFINERY TANK CAR MARKETS

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days). Prices in cents per gallon, except heavy fuel oils in dollars per barrel, tank car lots, f.o.b. refineries in districts designated, except where otherwise noted. Inter-refinery and export prices not included, unless so stated in the respective markets. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

Gasoline *and* Naphtha

Prices Effective	Sept. 20	Sept. 13
OKLAHOMA		
U. S. Motor: (a) (Octane Test L-3)		
62 oct. & below	5.00 – 5.125	5.00 – 5.25
63-66 oct.	5.375 – 5.50	
67-69 oct.	5.625 – 5.875	
70-72 oct.	6.00 – 6.125	
60-62, 400 e.p.	5.00 – 5.25	5.00 – 5.25
64-66, 375 e.p.	*5.125 – 5.25	*5.125 – 5.25
68-70, 350-360 e.p.	*5.125 – 5.375	*5.125 – 5.375
WESTERN PENNA.		
Bradford-Warren:		
52-54 naphtha	*6.00 – 6.125	*6.00 – 6.125
Motor gasoline:		
U. S. Motor (58-62°)	6.00 – 6.25	6.00 – 6.25
Min. 60 oct.	*7.50 – 7.75	*7.50 – 7.75
Min. 65 oct.	*7.75 – 8.00	*7.75 – 8.00
64-66, 390 e.p.	6.125 – 6.25	6.125 – 6.25
68-70, 350-360 e.p.	6.25 – 6.375	6.25 – 6.375
Other districts:		
52-54 naphtha	*5.875 – 6.00	*5.875 – 6.00
54-56 naphtha	*6.00 – 6.125	*6.00 – 6.125
Motor gasoline:		
U. S. Motor (58-62°)	6.00 – 6.125	6.00 – 6.125
Min. 60 oct.	7.375 – 7.75	7.375 – 7.75
Min. 65 oct.	7.50 – 8.00	7.50 – 8.00
64-66, 390 e.p.	6.00 – 6.125	6.00 – 6.125
68-70, 350-360 e.p.	6.25 – 6.375	6.25 – 6.375
CENTRAL MICHIGAN (Prices f.o.b. Cent. Mich. refinery group basis. Shipments, however, may originate at plants outside Central group).		
Str.-Run Gasoline	5.375 – 5.75	5.375 – 5.75
64-66 octane gas.	7.75 – 8.00	7.75 – 8.00
68-70 octane gas.	8.25 – 8.50	8.25 – 8.50
CALIFORNIA (3c tax to be added to prices if used in state)		
U. S. Motor:		
54-58, for instate shipment	7.75 – 9.25	7.75 – 9.25
54-58, for outside state shipment	8.25 – 9.00	8.25 – 9.00
58-61, 375-400 e.p., 65 oct. & above	8.50 – 9.75	8.50 – 9.75
†**N. TEX.** (For shipment to Texas and N. Mex. destinations; Group 3 prices quoted on northern shipments).		
U. S. Motor:		
62 oct. & below	5.00 – 5.25	5.125 – 5.25
63-67 oct.	5.375 – 5.625	5.50 – 5.625
68-70 oct. (regular)	6.00	6.00 – 6.25
60-62, 400 e.p.	*5.125 – 5.25	*5.125 – 5.375
KANSAS (For Kansas destinations only)		
U. S. Motor: (a) (Octane Test L-3)		
62 oct. & below	5.25 – 5.375	5.375 – 5.625
63-66 oct.	5.625 – 5.75	
67-69 oct.	5.875 – 6.00	
70-72 oct.	6.25 – 6.375	
†**W. TEX. & N. MEX.**		
U. S. Motor:		
62 oct. & below	5.00 – 5.125	5.125
63-67 oct.	5.375 – 5.50	5.50
68-70 oct. (regular)	6.00 – 6.125	6.125
†**E. TEX.**		
60-62, 400 e.p.	*5.00	*5.125
N. LA. (For shipment within La. & into Ark.)		
U. S. Motor:		
62 oct. & below	5.50	5.50
63-67 oct.	5.75 – 6.00	5.75 – 6.00
68-70 oct. (regular)	6.50	6.50
ARKANSAS (For shipment within Ark. & into La.)		
U. S. Motor:		
62 octane & below	5.50	5.50
63-67 oct.	6.00	6.00
OHIO (Quotations of S. O. Ohio. Delivered anywhere in Ohio).		
U. S. Motor	8.75	8.75
Above 65 oct.	9.00	9.00

Natural Gasoline

(Prices are those to blenders on freight basis shown below. Shipments, however, may originate in other Mid-Continent manufacturing districts, such as Panhandle Texas, S. W. Texas or Kans.)

F.O.B. GROUP 3		
Grade 26-70	4.375	4.125
F.O.B. BRECKENRIDGE		
Grade 26-70	4.50	4.25
CALIFORNIA (F.o.b. plants in Los Angeles basin)		
75-85, 350-375 e.p. for blending	7.25 – 7.50	7.25 – 7.50

*Nominal.

‡Only one refiner quoting.

†Refiners report they generally receive from 0.25c to 0.5c per gal. more for gasoline & kerosine for local or differential territory shipment.

(a) In line with National Petroleum News' policy of reflecting general trade practice, the above revisions in octane brackets, determined according to L-3 method, for U. S. Motor gasoline, have been made in the Okla. and Kans. markets, effective Sept. 20, 1937. Formerly, octane numbers were: 62 & below, 63-67, and 68-70.

Kerosine

Prices Effective	Sept. 20	Sept. 13
WESTERN PENNA.		
Bradford-Warren:		
45 w.w.	5.125 – 5.25	5.125 – 5.25
46 w.w.	5.25 – 5.375	5.25 – 5.375
47 w.w.	5.375 – 5.50	5.375 – 5.50
Other districts:		
45 w.w.	5.125 – 5.25	5.125 – 5.25
46 w.w.	5.25 – 5.375	5.25 – 5.375
47 w.w.	5.375 – 5.50	5.375 – 5.50
CENTRAL MICHIGAN (Prices f.o.b. Cent. Mich. refinery group basis. Shipments, however, may originate at plants outside Central group).		
47-49 w.w.	5.00 – 5.30	5.00 – 5.30
OKLAHOMA		
41-43	4.00 – 4.25	4.00 – 4.25
42-44 w.w.	4.25 – 4.375	4.25 – 4.375
KANSAS (For Kansas destinations only).		
41-43 w.w.	4.375 – 4.50	4.375 – 4.50
42-44 w.w.	4.50 – 4.625	4.50 – 4.625
†**N. TEX.** (For shipment to Texas and New Mexico destinations; Group 3 prices quoted on northern shipments).		
41-43 w.w.	4.25 – 4.375	4.25 – 4.375
†**E. TEX.**		
41-43 w.w.	*4.00 – 4.125	*4.00 – 4.125
N. LA. (For shipment within La. and into Ark.).		
41-43 w.w.	4.50	4.50
ARK. (For shipment within Ark. and into La.).		
41-43 w.w.	‡4.75	‡4.75
CALIFORNIA		
40-43 w.w.	5.00 – 6.50	5.00 – 6.50

Gas *and* Fuel Oils

WESTERN PENNA.		
Bradford-Warren:		
36-40	4.75 – 4.875	4.75 – 4.875
Other districts: (Excluding Pittsburgh District Prices).		
36-40	4.50 – 4.625	4.50 – 4.625
CENTRAL MICHIGAN (Prices f.o.b. Cent. Mich. refinery group basis. Shipments, however, may originate at plants outside Central group).		
P.W. Distillate	4.50 – 5.00	4.50 – 5.00
No. 3 gas oil, str.	4.25 – 4.625	4.25 – 4.625
U.G.I. gas oil	4.00 – 4.40	4.00 – 4.40
Fuel Oils (Vis. at 100):		
500-700 Vis.	3.375 – 3.625	3.375 – 3.625
300-500 Vis.	3.50 – 4.00	3.50 – 4.00
100-300 Vis.	3.50 – 4.25	3.50 – 4.25
OKLAHOMA		
No. 1 white	4.00 – 4.125	4.00 – 4.125
No. 1 straw	3.75 – 3.875	3.75 – 3.875
No. 2 straw	3.50 – 3.75	3.50 – 3.75
No. 2 dark	3.375 – 3.625	3.375 – 3.625
U. G. I. gas oil	3.125 – 3.375	3.125 – 3.375
28-30 zero	*3.25 – 3.375	*3.25 – 3.375
28-30	‡$1.35	‡$1.35
24-26	‡$0.925	‡$0.925
18-22	*$0.825-$0.90	*$0.825-$0.90
14-16	*$0.80 –$0.85	$0.80 –$0.85
KANSAS (For Kans. destinations only).		
No. 1 p.w. fuel oil	4.125 – 4.25	4.125 – 4.25
10-14 fuel oil	$0.725-$0.775	$0.725-$0.775
N. TEX. (For shipment to Texas and N. Mex.; Group 3 prices quoted on northern shipments).		
No. 1 white	*4.00 – 4.125	*4.00
U. G. I. gas oil	2.875	2.875
24-26	$0.85 –$0.875	$0.85 –$0.875
18-22	$0.80 –$0.825	$0.80 –$0.825
N. LA. (For shipment within La. and into Ark.).		
No. 2	3.50 – 3.625	3.50 – 3.625
20-24	$1.10 –$1.15	$1.10 –$1.15
16-20	$0.95 –$1.00	$0.95 –$1.00
10-14	$0.80 –$0.85	$0.80 –$0.85
ARK. (For shipment within Ark. and into La.).		
No. 2	†3.75	‡3.625
28-30 gas oil, zero	†3.50	‡3.375
CALIFORNIA		
San Joaquin Valley:		
Heavy fuel	$0.65 –$1.00	$0.65 –$1.00
Light fuel	$0.85 –$1.10	$0.85 –$1.10
Diesel fuel (per gal.)	4.75 – 5.00	4.75 – 5.00
Stove dist. (per gal.)	6.25 – 7.00	6.25 – 7.00
Los Angeles:		
Heavy fuel	$0.60 –$1.10	$0.60 –$1.10
Light fuel	$0.90 –$1.20	$0.90 –$1.20
Diesel fuel (per gal.)	3.75 – 5.00	3.75 – 5.00
Stove dist. (per gal.)	4.00 – 7.00	4.25 – 7.00
San Francisco:		
Heavy fuel	$1.15	$1.15
Light fuel	$1.25	$1.25
Diesel fuel (per gal.)	5.50	5.50
Stove dist. (per gal.)	7.50	7.50

Note: All above heavy fuels meet Pacific specification 400; light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

Neutral Oils

Prices Effective	Sept. 20	Sept. 13
WESTERN PENNA.		
Viscous Neutrals (*Viscosity at 70° F.*)		
200 Vis. (180 at 100°) No. 3 col., 420-425 fl.:		
0 p.t.	27.00 –27.50	27.00 –27.50
10 p.t.	26.00 –26.50	26.00 –26.50
15 p.t.	25.50 –26.00	25.50 –26.00
25 p.t.	24.50 –25.00	24.50 –25.00
180 Vis. (165 at 100) No. 3 col., 410-415 fl.:		
25 p.t.	23.00 –23.50	23.00 –23.50
150 Vis. (143 at 100) No. 3 col., 400-405 fl.:		
0 p.t.	22.50 –23.00	22.50 –23.00
10 p.t.	21.50 –22.00	21.50 –22.00
15 p.t.	21.00 –21.50	21.00 –21.50
25 p.t.	20.00 –20.50	20.00 –20.50

SOUTH TEXAS

Vis. Color		
Pale Oils: (*Vis. at 100° F.; p.t. 0*)		
100 No. 1½-2½	5.25 – 5.50	5.25 – 5.50
200 No. 2-3	7.25 – 7.50	7.25 – 7.50
300 No. 2-3	7.75 – 8.00	7.75 – 8.00
500 No. 2½-3½	8.75 – 9.00	8.75 – 9.00
750 No. 3-4	9.25 – 9.50	9.25 – 9.50
1200 No. 3-4	9.75 –10.00	9.75 –10.00
2000 No. 4	10.00 –10.25	10.00 –10.25
Red Oils:		
200 No. 5-6	7.25 – 7.50	7.25 – 7.50
300 No. 5-6	7.75 – 8.00	7.75 – 8.00
500 No. 5-6	8.75 – 9.00	8.75 – 9.00
750 No. 5-6	9.25 – 9.50	9.25 – 9.50
1200 No. 5-6	9.75 –10.00	9.75 –10.00
2000 No. 5-6	10.00 –10.25	10.00 –10.25

Note: South Texas red oil prices shown above cover oils with green cast; blue cast red oils are slightly lower in some cases.

MID-CONTINENT (Vis. at 100° F.; F.o.b. Tulsa basis).

(0 to 10 P.P.)

Vis. Color		
Pale Oils:		
60-85—No. 2	5.50	5.50
86-110—No. 2	6.00	6.00
150—No. 3	9.00	9.00
180—No. 3	10.00	10.00
200—No. 3	10.50	10.50
250—No. 3	11.50	11.50
280—No. 3	12.50	12.50
300—No. 3	13.00	13.00
Red Oils:		
180—No. 5	9.00	9.00
200—No. 5	9.50	9.50
250—No. 5	10.50	10.50
280—No. 5	11.50	11.50
300—No. 5	11.75	11.75

Note: Viscous oils, 15-25 p.p., generally are quoted 0.5c under 0-10 p.p. oils. Non-viscous oils, 15-25 p.p., generally are quoted 0.25c under 0-10 p.p. oils. Viscous oils (150-300 vis.), No. 4 color, generally are quoted 0.5c above No. 5 color oils.

CHICAGO (Vis. at 100° F.)

Pale Oils **0 to 10 p.p.:

Vis. Color		
60-85—No. 2	7.25	7.25
86-110—No. 2	7.75	7.75
150—No. 3	10.00	10.00
180—No. 3	11.00	11.00
200—No. 3	11.50	11.50
250—No. 3	12.50	12.50
Red Oils:		
180—No. 5	10.00	10.00
200—No. 5	10.50	10.50
250—No. 5	11.50	11.50
280—No. 5	12.50	12.50
300—No. 5	12.75	12.75

**Viscous oils, 15 to 30 p.p. are quoted 0.5c lower, 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p. are quoted 0.25c lower. To obtain delivered prices in Chicago, add 0.25c per gal.

Cylinder Stocks

MID-CONTINENT (F.o.b. Tulsa basis).

Bright Stocks:		
190-200 Vis. at 210° D	21.00	21.00
150-160 Vis. at 210° D:		
0 to 10 p.p.	18.00	18.00
10 to 25 p.p.	17.50	17.50
25 to 40 p.p.	17.00	17.00
150-160 vis. at 210° E	17.00	17.00

OUT OF THE TEST TUBE COMES

MARATHON MOTOR OIL

REFINED FROM RANGER CRUDE

And into the motor of your car goes the finest motor oil that money can buy - - - MARATHON "best in the long run."

This extraordinary oil is refined from Ranger Crude from the famous Ranger Pool in Texas. After endless laboratory testing, THE OHIO OIL COMPANY, from its vast reserves of crude, selected Ranger as the basic crude from which to refine the finest possible motor oil. This choice is endorsed by geologists, chemists, and by hundreds of thousands of grateful motorists.

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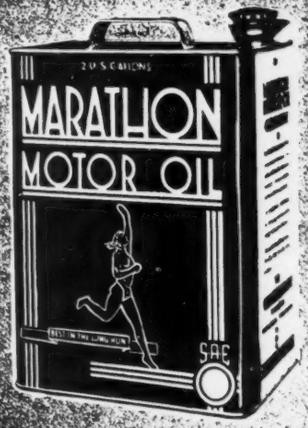

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MARATHON PRODUCTS
BEST IN THE LONG RUN
LINCO

THE OHIO OIL COMPANY

GENERAL OFFICES - - - - FINDLAY, OHIO

ROBINSON, ILLINOIS — TULSA, OKLAHOMA — FT. WORTH, TEXAS

of actual sales reported. Consensus among traders late in the week was that none of this material was available at 4.25 cents for reasonably prompt lifting and 4.375 cents was the price most commonly heard.

Kerosine inquiries were more numerous and one cargo of 41-43 w.w. was reported sold at 5.25 cents, f.o.b. Gulf, for immediate coastwise lifting. Kerosine was hard to obtain in the open market at present, traders generally reported.

Bunker C fuel oil was said to be freely available for prompt lifting and quotations were reported lower by some traders. Prices heard late in the week generally ranged from $0.875 to $0.90 a barrel.

California

Prices Steady

N. P. N. News Bureau

LOS ANGELES, Sept. 18.—No important price changes were registered on Pacific Coast petroleum markets the past week. The only apparent threat to stability of the wholesale and retail gasoline price structure came from increased supplies of competitive gasoline from small refineries in the Los Angeles Basin operating on low-grade Wilmington crude. So far, however, no serious break in prices had occurred.

California suppliers continued to maintain a firm attitude in regard to prices of aviation gasoline sought by Oriental buyers. Some indication of the actual price situation was expected on Sept. 22 when bids for aviation crude are scheduled to be opened by the Japanese government. Bids, to be opened later, have also been asked for on considerable quantities of aviation gasoline to be shipped to Kobe and Yokohama.

Fuel oil markets were moderately firm, with considerable domestic buying interest, notwithstanding the unseasonable hot weather. Limited supplies of high-sulphur content fuel oil were reported available at $0.55 per barrel, but the prevailing price at independent plants in the Basin area was $0.60 to $0.65 per barrel.

Wax

Scale More Active

NEW YORK, Sept. 20.—More activity was apparent in the crude scale wax market during the past week, according to several traders. The buying imparted a steadier aspect to the general market although there was no change reported in prices during the week, these traders said.

As a rule, prices quoted during the week ranged from 2.9 to 2.95 cents a pound on the 124-126 white scale. However, there were occasional reports of companies asking 3 cents and some traders said there were occasional offerings at under 2.9 cents.

Fuel Oil . . . . .

TULSA, Sept. 20.—Inquiries were more numerous in the Mid-Continent last week for light fuel oils. This was taken as an indication some buyers had abandoned hope of "waiting out the market" and were trying to complete storage before a cold spell stimulated widespread buying for replacements.

The inquiries, however, failed to develop into any sizable volume of buying. Refiners continued to keep most of their oils in storage. Some inter-refinery buying was reported but the volume was not large.

A large buyer of East Texas refined products was reported to have told one of his large accounts last week that there was no use looking in East Texas for furnace oil at present. Inquiries failed to develop sufficient volume even for a part cargo for coastwise movement.

Heavy fuel oils were in good demand from both railroads and industrial users.

* * *

NEW YORK, Sept. 20.—A sharp drop in temperatures along the northern seaboard causing homeowners and apartment houses to start their oil burners going for the first time this fall, revived interest in light fuel oil market at eastern terminals. A number of suppliers reported an upturn in demand as distributors who had been lagging a bit in filling storage began to send in more shipping instructions.

Wholesale prices for light fuels were reported steady. Distributors reported some shading of posted retail tank wagon prices. In most instances, they said, it was being done by peddlers who were hoping to pick up some early season business.

* * *

CHICAGO, Sept. 20.—With light fuel oils from southwestern refineries scarcer, oil from Michigan was reported to have moved over a wider territory in the middle west last week. Sales in Chicago at prices which were slightly under Group 3 quotations were reported.

However, Nos. 1, 2 and 3 oils were none too plentiful in Michigan, and prices f.o.b. Michigan refineries were curtailing movement.

Heavy oils, both in the Mid-Western and Michigan markets, were listless. Some pickup in automotive demand for industrial fuel was reported in the latter district, however, and this has created a feeling of optimism among sellers there.

Britain May Strengthen Oil Independence

LONDON, Sept. 15.—The recent sinking of a British tanker by a pirate submarine in the Mediterranean is raising the question again of oil supplied for the United Kingdom in time of war. Britain at present spends about $5,000,000 a week on the purchase of oil from abroad, a fact that has long worried the Committee of Imperial Defence.

Recently the committee has been actively investigating this general problem and is expected to advise the government on what line of action it should take. It is generally believed this advice will be to urge the establishment of a series of plants for converting coal wholly into oil, leaving no solid residual fuel.

Meanwhile, further important extensions of Britain's oil storage depots are being rapidly carried out. The latest to be completed is 40 miles from London. Present tankage will hold 30,000,000 gallons of oil. Built by private enterprise, the Admiralty plans to requisition part for the Navy. Coastal and anti-aircraft guns are now being installed for protection. The depot is to have a jetty built out to the deepest part of the River Thames, so that warships will be able to refuel there.

TANK WAGON MARKETS, HEATING OILS

Prices in Effect Sept. 20, 1937

Following are tank wagon prices of various grades of heating oil at the points shown in various territories. Prices are in cents per gallon.

	No. 1	No. 2	No. 3	No. 4
S. O. NEW JERSEY				
Newark, N. J.	*	7.00	7.00	7.00
Atlantic City, N. J.	*	6.75	6.75	6.75
Baltimore, Md.	7.50	7.00	7.00	7.00
Washington, D. C.	7.75	7.25	7.25	7.25
SOCONY-VACUUM OIL CO. INC. (S. O. New York Division)				
New York City	*	7.50	7.50	7.50
Albany, N. Y.	*	7.50	7.50	7.50
Rochester, N. Y.	*	7.50	7.50	7.50
Boston, Mass.	*	7.00	7.00	7.00
Bangor, Me.	*	8.00	8.00	8.00
Manchester, N. H.	*	8.00	8.00	8.00
Burlington, Vt.	*	8.00	8.00	8.00
New Haven, Conn.	*	7.50	7.50	7.50
Providence, R. I.	*	7	7	7

*Prices for No. 1 fuel in S. O. New Jersey and Socony-Vacuum territories same as for kerosine, which see in tank wagon table for various cities; prices change with kerosine.

	No. 1	No. 2	No. 3	No. 4
ATLANTIC REFINING				
Philadelphia, Pa.	7.25	6.50	6.50	6.50
Allentown, Pa.	7.25	6.50	6.50	6.50
Wilmington, Del.	7.75	7.00	7.00	7.00
Springfield, Mass.	9.00	7.50	....	7.50
Worcester, Mass.	9.00	7.50	....	7.50
Hartford, Conn.	9.00	7.50	....	7.50

S. O. OHIO

*Ohio Statewide	8.00	8.00	7.50	6.75

Note: S. O. Ohio prices are for hose dumps, bucket dumps are 0.5c per gallon higher.

*Except Cleveland Division and City of Toledo. In Cleveland Division (Cuyahoga Lake and Geauga counties), No. 1 price is same as statewide; Nos. 2, 3 and 4 are 0.5c higher; No. 5 is priced 0.25c lower than No. 4. In Toledo No. 2 is 0.5c lower than statewide, others same.

S. O. INDIANA

Stanolex Fuel and Furnace Oils

	No. 1 Fuel	Stanolex Furnace
Chicago	7.00	7.00
Indianapolis	....	*11.7
Detroit	....	7.1
Milwaukee	8	7.3
Minneapolis	7.5	7.5
Sioux City	7.1	7.1
St. Louis	7.5	6.8
Kansas City	6.5	6.5

*Includes state tax of 4c.

Note: Small-lot deliveries of light fuel oils range up to 2c higher than above quotations.

REFINERY TANK CAR MARKETS

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days) unless otherwise stated. Prices in cents per gallon, except heavy fuel oils in dollars per barrel, tank car lots, f.o.b. refineries in districts designated, except where otherwise noted. Inter-refinery and export prices not included, unless so stated in the respective markets. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

Cylinder Stocks (cont'd)

Prices Effective	Sept. 20	Sept. 13
Mid-Continent (cont'd)		
120 Vis. at 210° D:		
0 to 10 p.p.	17.00	17.00
10 to 25 p.p.	16.50	16.50
25 to 40 p.p.	16.00	16.00
600 S.R. Dark Green	5.00 – 7.50	5.00 – 7.50
600 S.R. Olive Green	7.00 – 9.50	7.00 – 9.50
631 S.R.	‡15.50	‡15.50
Black Oil	3.50 – 4.00	3.50 – 4.00
CHICAGO (Viscosity at 210°)		
Unfiltered Steam Refined:		
140	9.00	9.00
160	10.00	10.00
200	11.00	11.00
Bright stocks, 160 vis. at 210. No. 8 color:		
0 to 10 p.p.	19.75	19.75
15 to 25 p.p.	19.25	19.25
30 to 40 p.p.	18.75	18.75
E filtered Cyl. Stock	15.00	15.00

To obtain prices delivered in Chicago, add 0.25c per gal.

‡Only one refiner quoting.

Prices Effective	Sept. 20	Sept. 13
WESTERN PENNA.		
600 S.R. filterable	13.50 –14.00	13.50 –14.00
650 S.R.	16.50 –17.00	16.50 –17.00
600 fl.	17.50 –18.00	17.50 –18.00
630 fl.	21.50 –22.00	21.50 –22.00
600 Warren E.	16.50 –17.50	17.50 –18.00
Bright stock, 145-155 vis. at 210°, 540-550 flash, No. 8 color:		
10 p.t.	23.00 –23.50	23.00 –23.50
15 p.t.	22.00 –22.50	22.00 –22.50
20 p.t.	21.00 –21.50	21.00 –21.50
25 p.t.	20.00 –20.50	20.00 –20.50

Petrolatums

WESTERN PENNA. (Per lb., in barrels, carload lots. In tank cars, 0.5c per lb. less).

Snow white	6.625– 6.75	6.625– 6.75
Lily White	5.625– 5.75	5.625– 5.75
Cream White	4.625– 4.75	4.625– 4.75
Light Amber	2.75 – 2.875	2.75 – 2.875
Amber	2.50 – 2.625	2.50 – 2.625
Red	2.125– 2.375	2.125– 2.375

Wax

Prices Effective	Sept. 20	Sept. 13
WESTERN PENNA. (Per lb., f.o.b. N. Y. basis)		
122-124 w.c. scale, A.m.p.	2.90 – 2.95	2.95
124-126 w.c. scale, A.m.p.	2.90 – 3.00	2.95 – 3.00

OKLAHOMA (Per lb. in bbls.; in a few instances, per lb. in burlap bags).

124-126 w.c. scale, A.m.p.	3.00 – 3.125	3.00 – 3.125

CHICAGO (In bags, carload lots. Melting points are E.M.P. (A.S.T.M.) methods; add 3° F. to convert into A.m.p.)

Fully refined:		
122-124	4.65 – 4.75	4.65 – 4.75
125-127	4.90 – 5.00	4.90 – 5.00
127-129	5.05 – 5.15	5.05 – 5.15
130-132	**5.45 – 5.55	**5.45 – 5.55
132-134	**5.70 – 5.80	**5.70 – 5.80
135-137	**6.45 – 6.55	**6.45 – 6.55

**Same prices quoted in bags or slabs loose.

MID-WESTERN TANK CAR MARKET

Prices are those made by Chicago sellers, on Group 3 (Oklahoma) freight basis, although shipments may originate in other South-western or Mid-western refining districts

Gasoline

Prices Effective	Sept. 20	Sept. 13
U. S. Motor:		
62 oct. and below	4.75 – 5.00	4.75 – 5.00
63-67 oct.	5.125– 5.625	5.125– 5.625
68-70 oct. (regular)	5.625– 6.00	5.625– 6.00
60-62, 400 e.p.	4.75 – 5.00	4.75 – 5.00
64-66, 375 e.p.	5.125– 5.50	5.125– 5.50
68-70, 350-360 e.p.	5.00 – 5.50	5.00 – 5.50

Kerosine

41-43 w.w.	4.00 – 4.25	4.00 – 4.25
42-44 w.w.	4.125– 4.375	4.125– 4.375

*Nominal

Fuel *and* Gas Oils

Prices Effective	Sept. 20	Sept. 13
Domestic:		
No. 1 p.w.	3.875– 4.00	3.875– 4.00
No. 1 straw	3.75 – 3.875	3.75 – 3.875
No. 2 straw	3.50 – 3.625	3.50 – 3.625
No. 2 dark	3.375– 3.50	3.375– 3.50
No. 3	3.25 – 3.375	3.25 – 3.375
No. 4	$1.05 –$1.10	$1.05 –$1.10
No. 5	$0.80 –$0.85	$0.80 –$0.85
Industrial:		
No. 4	$0.95 –$1.10	$0.95 –$1.10
No. 5	$0.80 –$0.85	$0.80 –$0.85

Prices Effective	Sept. 20	Sept. 13
Industrial (cont'd)		
No. 6	$0.70 –$0.75	$0.70 –$0.75
U. G. I. gas oil	2.875– 3.25	2.875– 3.25

Naphtha and Solvent

Stoddard solvent	6.875	6.875
Cleaners' naphtha	7.375	7.375
V. M. & P. naphtha	7.375	7.375
Mineral spirits	6.375	6.375
Rubber solvent	7.375	7.375
Lacquer diluent	8.375	8.375

DAILY GASOLINE PRICES

Daily range of gasoline prices as reported in PLATT'S OILGRAM. (Week Ended Sept. 17, 1937)

	Sept. 13	Sept. 14	Sept. 15	Sept. 16	Sept. 17
U. S. Motor, 62 oct. & below:					
*North Texas	5.125– 5.25	5.125– 5.25	5.125– 5.25	5.125– 5.25	5.125– 5.25
West Texas	5.125	5.125	5.125	5.125	5.125
Oklahoma	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25	5.00 – 5.125	5.00 – 5.125
Mid-Western (Group 3 basis)	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
U. S. Motor, 63-67 oct.:					
*North Texas	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
West Texas	5.50	5.50	5.50	5.50	5.50
(a) Oklahoma	5.375– 5.625	5.375– 5.625	5.375– 5.625	5.375– 5.50	5.375– 5.50
Mid-Western (Group 3 basis)	5.125– 5.625	5.125– 5.625	5.125– 5.625	5.125– 5.625	5.125– 5.625
U. S. Motor, 68-70 oct. (regular)					
*North Texas	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
West Texas	6.125	6.125	6.125	6.125	6.125
(a) Oklahoma	6.00 – 6.125	6.00 – 6.125	6.00 – 6.125	5.625– 5.875	5.625– 5.875
Mid-Western (Group 3 basis)	5.625– 6.00	5.625– 6.00	5.625– 6.00	5.625– 6.00	5.625– 6.00
Motor Gasoline, 60-64 oct.					
New York harbor	†7.25 – 7.75	†7.25 – 7.75	†7.25 – 7.75	†7.25 – 7.75	†7.25 – 7.75
Philadelphia district	†7.25 – 7.50	†7.25 – 7.50	†7.25 – 7.50	†7.25 – 7.50	†7.25 – 7.50
Baltimore district	†7.50 – 7.75	†7.50 – 7.75	†7.50 – 7.75	†7.50 – 7.75	†7.50 – 7.75
Motor Gasoline, 65 oct. & above					
New York harbor††	†7.50 – 8.00	†7.50 – 8.00	†7.50 – 8.00	†7.50 – 8.00	†7.50 – 8.00
Philadelphia district	†7.50 – 7.75	†7.50 – 7.75	†7.50 – 7.75	†7.50 – 7.75	†7.50 – 7.75
Baltimore district	†7.75 – 8.00	†7.75 – 8.00	†7.75 – 8.00	†7.75 – 8.00	†7.75 – 8.00
U. S. Motor, 58-62°					
Bradford-Warren (Western Penna.)	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Other districts (Western Penna.)	6.00 – 6.125	6.00 – 6.125	6.00 – 6.125	6.00 – 6.125	6.00 – 6.125
Motor Gasoline, Min. 60 oct.					
Bradford-Warren (Western Penna.)	†7.50 – 7.75	†7.50 – 7.75	†7.50 – 7.75	†7.50 – 7.75	†7.50 – 7.75
Other districts (Western Penna.)	7.375– 7.75	7.375– 7.75	7.375– 7.75	7.375– 7.75	7.375– 7.75
Motor Gasoline, Min. 65 oct.					
Bradford-Warren (Western Penna.)	†7.75 – 8.00	†7.75 – 8.00	†7.75 – 8.00	†7.75 – 8.00	†7.75 – 8.00
Other districts (Western Penna.)	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00

*For shipment to Texas and New Mexico destinations; Group 3 prices are quoted on northern shipment.

†Nominal.

(a) Beginning Sept. 16, Okla. octane numbers changed to 63-66, 67-69 and 70-72, according to octane test L-3. Price on 70-72 octane, Sept. 16 and 17, was 6.00-6.125c.

TANK WAGON MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect Sept. 20, 1937, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

S. O. New Jersey

ESSOLENE

	Consumer Tank Car	Dealer T.W.	Taxes	Posted S.S.	Kerosine T.W.
Atlantic City, N. J.	8	9.5	4	*	9
Newark, N. J.	8	9.5	4	*	9
Annapolis, Md.	9.1	10.6	5	*	9.5
Baltimore, Md.	8.5	10	5	18.5	9
Cumberland, Md.	9.9	12.4	5	*	10
Washington, D. C.	8	9.5	3	16	9.5
Danville, Va.	9.7	12.2	6	*	12.9
Norfolk, Va.	8.5	11	6	*	11.5
Petersburg, Va.	8.8	11.3	6	*	11.7
Richmond, Va.	8.8	11.3	6	*	11.7
Roanoke, Va.	10	12.5	6	*	12.9
Charleston, W. Va.	9.3	11.8	6	*	12.6
Parkersburg, W. Va.	8.6	11.1	6	*	11.2
Wheeling, W. Va.	9.5	11	6	*	12.2
Charlotte, N. C.	9.9	12.4	7	*	12.6
Hickory, N. C.	10.4	12.9	7	*	13
Mt. Airy, N. C.	10.2	12.7	7	*	12.8
Raleigh, N. C.	9.5	12	7	*	12.1
Salisbury, N. C.	10	12.5	7	*	12.7
Charleston, S. C.	8.5	11	7	*	11.1
Columbia, S. C.	9.5	12	7	*	12.1
Spartanburg, S. C.	10.2	12.7	7	*	12.9

*S. O. New Jersey transferred stations to dealers; no prices available.

Price basis to undivided dealers: Dealer t.w. price less 0.5c per gal.

Price basis to commercial consumers: To contract accounts, purchasing at least one full compartment at a time by hose connection: Effective March 12, 1937, in New Jersey, and March 8 in Maryland, District of Columbia, and in Arlington and Fairfax Counties in Virginia, on yearly purchases: from 2,500 to 100,000 gals., consumer t.w. price at time and place of delivery; 100,000 gals. per year, consumer tank car price, plus 0.5c per gal. Generally consumer t.w. price in foregoing states is equivalent of dealer t.w. price, less 0.5c per gal.

Effective May 15, 1937, on Essolene and Esso (by tank wagon) in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax Counties, which see above), commercial consumers taking deliveries of 50 gals. (West Va. 100 gals.) or more at one time will be billed at the posted consumer t.w. price. Deliveries less than 50 gals. (West Va. 100 gals.) will be billed at 4c per gal. over posted consumer t.w. price. Generally, posted consumer t.w. price will be equivalent to the dealer price less 0.5c per gal.

Kerosine Discount: 1c off t.w. price for 25 gals or more, under contract thru territory (Baltimore City contract not necessary) except no discount in state of New Jersey.

Socony-Vacuum Oil Co., Inc.

(S. O. New York Division)

SOCONY MOBILGAS

	Consumer Tank Car	"Split" Dealer T.W.	Taxes	Total "Split" Dealer T.W.	Kerosine T.W.
Metropolitan N. Y. City: Boroughs of Manhattan, Bronx and Brooklyn (Kings and Queens)	8.5	10	*5	15	9
Borough of Richmond (Staten Is.)	8.5	10	*5	15	9
Albany, N. Y.	8.5	10	5	15	9
Binghamton, N. Y.	9.25	10.8	5	15.8	9
Buffalo, N. Y.	9.04	10.8	5	15.8	8.5
Jamestown, N. Y.	8.78	11.3	5	16.3	8.25
Plattsburg, N. Y.	8.9	10.9	5	15.9	9.5
Rochester, N. Y.	9.17	10.5	5	15.5	8.5
Syracuse, N. Y.	9.12	10.5	5	15.5	9.5
Danbury, Conn.	8.8	10.3	4	14.3	9
Hartford, Conn.	8.6	10.1	4	14.1	9
New Haven, Conn.	8.5	10	4	14	9
Bangor, Me.	9.1	11.3	5	16.3	9.5
Portland, Me.	8.5	10.8	5	15.8	8.75
Boston, Mass.	8.5	9.5	4	13.5	8.5
Concord, N. H.	9.2	11.8	5	16.8	9.5
Lancaster, N. H.	10.1	12.8	5	17.8	10.25
Manchester, N. H.	9	11.3	5	16.3	9.5
Providence, R. I.	8.5	10	4	14	8.5
Burlington, Vt.	8.9	10.9	5	15.9	9.5
Rutland, Vt.	9.2	11.2	5	16.2	9

*Plus 2% city sales tax computed at time of each sale.

Note: Socony-Vacuum has transferred all service stations to dealers; no prices available.

Price basis to undivided dealers: 0.5c less than "split" dealer t.w.

Price basis to commercial consumers: Effective about Nov. 15, 1936 in New York and New England, for tank wagon delivery: monthly purchases of 25,000 gals. or over, pay consumer tank car price at point of delivery, plus 0.5c gal.; monthly purchases of 5,000 to 25,000 gals., pay undivided dealer tank wagon price at point of delivery; monthly purchases of less than 5,000 gals., pay divided dealer tank wagon price at point of delivery. Private consumers pay undivided dealer tank wagon price at point of delivery, plus 2c gal.

Atlantic Refining

ATLANTIC WHITE FLASH GASOLINE

	Commercial Tank Car	All Tax	Total Dealer T.W.	S.S.	Kerosine T.W.
Philadelphia, Pa.	8	5	14	17	10.5
Pittsburgh	8.5	5	15.5	18	11
Allentown	8.5	5	15	**	11
Erie	8	5	14.5	**	10
Scranton	8.5	5	15	**	11
Altoona	8.5	5	15.5	**	11
Harrisburg	8.5	5	15	**	11
Williamsport	8.5	5	15.5	**	11
Dover, Del.	...	5	14.5	**	11
Wilmington	...	5	14.5	**	11
Boston, Mass.	...	4	13.5	**	8.5
Springfield, Mass.	...	4	14.3	**	9
Worcester, Mass.	...	4	14.8	**	9
Fall River, Mass.	...	4	13	**	8.5
Hartford, Conn.	...	4	14.6	**	9
New Haven, Conn.	...	4	14	**	9
Providence, R. I.	...	4	14	**	8.5
Atlantic City, N. J.	...	4	13.5	**	9
Camden, N. J.	...	4	13.5	**	9
Trenton, N. J.	...	4	13.5	**	9
Annapolis, Md.	...	5	15.6	**	9.5
Baltimore, Md.	...	5	15	**	9
Hagerstown, Md.	...	5	16	**	10
Richmond, Va.	...	6	17.3	**	11.7
Wilmington, N. C.	...	7	18.1	**	11.3
Brunswick, Ga.	...	7	16	**	*13
Jacksonville, Fla.	...	8	17.5	**	11

*Georgia has kerosine tax of 1c per gal., not included in above price.

**Atlantic Refining transferred stations to dealers; no prices available.

Price basis to undivided dealers: Dealer t.w. less 0.5c per gal.

Price basis to commercial consumers: in Penna. and Delaware, effective Mar. 11, 1937, on yearly gasoline purchases to contract accounts taking full compartment hose deliveries, using 100,000 gals. or more per year, tank car price plus 0.5c per gal.; consumers taking less than 100,000 gals., undivided dealer price. Consumers under contract and not under contract, taking less than full compartment delivery, and consumers not under contract taking full compartment delivery, get divided dealer price. Consumers taking less than 25 gals., t.w delivery, get 4c above undivided dealer price.

Discount on kerosine: Effective Oct. 29, 1936, in Pennsylvania and Delaware 2c per gal off t.w. price on t.w. deliveries of 25 gals. or more at one time.

S. O. Ohio

SOHIO X-70 GASOLINE

	All Tax	**Consumer T.W.	Commercial T.W.	†Divided Dlr.	Kerosine T.W.
Ohio State-Wide	5	17	15.5	16	*13.5
Defiance county	5	16	‡	15	....
Erie, Fulton, Hamilton, Henry, Lucas, Ottawa, Sandusky, Williams & Wood counties	5	17	‡	16	....
Counties where prices are below statewide:					
Columbiana	5	16.5	15	15.5	....
Franklin, Knox and Pickaway	5	16	14.5	15	....
Paulding	5	15.5	14	14.5	....

RENOWN GASOLINE (Third Grade)

Ohio State-Wide	5	16.5	15	15.5	....
Defiance county	5	15.5	‡	14.5	....
Erie, Fulton, Lucas, Ottawa, Sandusky, Williams and Wood	5	16.5	‡	15.5	....
Hamilton county	5	17	‡	16	....
Counties where prices are below statewide:					
Columbiana	5	16	14.5	15	....
Franklin, Knox, and Pickaway	5	15.5	14	14.5	....
Paulding	5	15	13.5	14	....
Counties where prices are above statewide: Butler, Clermont, Darke, Greene, Hocking, Miami, Montgomery, Preble and Warren	5	17	15.5	16	....

S. O. Ohio Cont'd

KEROSINE PRICES

(Off Statewide Level)

Kerosine prices are off statewide level in the following counties:

Gallia and Washington *13

Allen, Auglaize, Champaign, Columbiana, Darke, Geauga, Greene, Hancock, Hardin, Logan, Mahoning, Mercer, Preble, Putnam, Shelby, Trumbull, Union, Van Wert and Wyandot: *12.5

Paulding *12

Ashtabula *11.5

Fayette, Licking, Madison, Pickaway, Portage and Summit *9.5

*Kerosine prices include 1c state tax.

**Tank wagon price to commercial consumers, in t.w. deliveries of 25 gals. or more; less than 25-gal. deliveries get s.s. price. Price to undivided dealers is same as to commercial consumers.

Discounts to Commercial Consumers on contract: Effective Aug. 12, thru Ohio, for 20,000 gals. of gasoline or more per month, 1c per gal. off commercial consumer t.w. price. For counties where no commercial t.w. is posted, see following paragraph.

‡Commercial consumer t.w. posted price discont'd and Q.D.A. to t.w. consumers put into effect July 19, 1937, in counties of Defiance, Erie, Fulton, Hamilton, Henry, Lucas, Ottawa, Sandusky, Williams and Wood. For further information, write National Petroleum News.

†This price also to authorized agents, exclusive of 0.5c rental.

Sales tax: Ohio's 3% sales tax, effective Jan. 27, 1935, is added "where assessable, to regular posted prices", S. O. Ohio says.

On kerosine, prices to resellers and commercial consumers are posted generally at 3c per gal. below consumer t.w. price in any quantity, when such prices are on state-wide level.

S. O. Kentucky

CROWN GASOLINE

(Regular Grade)

	Consumer T.W.	All Tax	Total Consumer T.W.	Net Dlr.	Kerosine T.W
Covington, Ky.	13.5	6	19.5	16.5	11
Lexington, Ky.	14	6	20	17	11
Louisville, Ky.	14	6	20	17	10.5
Paducah, Ky.	14	6	20	17	10
Jackson, Miss.	14	7	21	18	*13
Vicksburg, Miss.	13.5	7	20.5	17.5	*13
Birmingham, Ala.	14	*8	22	19	12
Mobile, Ala.	13	*9	22	19	11
Montgomery, Ala.	13	*9	22	19	*14.5
Atlanta, Ga.	15	7	22	19	*12
Augusta, Ga.	14	7	21	18	*14
Macon, Ga.	14.5	7	21.5	18.5	*14.5
Savannah, Ga.	12	7	19	16	*12
Jacksonville, Fla.	12.5	8	20.5	17.5	12
Miami, Fla.	12.5	8	20.5	17.5	11.5
Pensacola, Fla.	13	*9	22	19	12
Tampa, Fla.	12	8		17	10.5

KYSO GASOLINE

(Third Grade)

Covington, Ky.	12	6	18	15.5	....
Lexington, Ky.	12.25	6	18.25	15.75	....
Louisville, Ky.	12	6	18	15.5	....
Paducah, Ky.	12	6	18	15.5	....
Jackson, Miss.	12.5	7	19.5	17	....
Vicksburg, Miss.	12	7	19	16.5	....
Birmingham, Ala.	11.5	*8	19.5	17	....
Mobile, Ala.	10.5	*9	19.5	17	....
Montgomery, Ala.	10.5	*9	19.5	17	....
Atlanta, Ga.	13	7	20	17.5	....
Augusta, Ga.	12	7	19	16.5	....
Macon, Ga.	12.5	7	19.5	17	....
Savannah, Ga.	9.5	7	16.5	14	....
Pensacola, Fla.	11	*9	20	17.5	....

Discounts to tank wagon consumers: Effective Jan. 4, 1937, thru territory, on Crown gasoline, 3c per gal. below consumer t.w. price; on Kyso, 2.5c below.

Discounts on kerosine: Prices in Kentucky are net, but in other states subject to 2c discount.

**Taxes*: in the tax column is included these city and county gasoline taxes at the following points: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Mississippi kerosine prices include 1c state tax. Montgomery kerosine price includes 1c city tax.

Above prices include these inspection fees on both gasoline and kerosine, per gallon, figured on basis of 50 gallons per barrel:

Alabama, 1/40c on gasoline, 1/2c on kerosine; Arkansas, 1/5c per gal. in a single barrel, 1/20c per gal. in bulk; Florida, 1/8c; Illinois, 3/100c; Indiana, 1/2c per gal. in a single barrel; 3/10c per gal. in lots of 2 to 10 bbls., 1/5c for 10 to 50 bbls., 2/25c for over 50 bbls.; Kansas, 1/50c, (3/50c can be charged to meet inspection department expenses); Louisiana, 1/32c; Minnesota, 1/25c; Missouri, 3/100c; Nebraska, 3/100c; Nevada, gasoline, 1/20c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 2/25c per gal., in lots of more than 50 bbls., 1/5c in lots less than 50 bbls.; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c; and Wisconsin, 1/25c.

Kerosine inspection fee only: Iowa, 2/25c; Michigan, 4/5c per gal. for first 2 bbls.; 3/5c for next 3; 2/5c for next 5; 3/10c for next 15, and 1/5c per gal. in lots over 25 bbls

TANK WAGON MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect Sept. 20, 1937, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

S. O. Indiana

	Red Crown Tax	Dealer Prices Red Crown T.W.	Stanolind	Kerosine T.W.
Chicago, Ill	4	15.5	13.5	12	10.1
Decatur, Ill	4	15.5	14	12	10.1
Joliet, Ill	4	15.5	14	13.5	10.1
Peoria, Ill	4	15.5	14	13.5	10.1
Quincy, Ill	4	15.3	13.8	12.4	9.9
Indianapolis, Ind	5	17.2	15.7	14.7	*14.8
Evansville, Ind	5	17	15.5	13	*14.6
South Bend, Ind	5	17.4	15.9	15.4	*13.6
Detroit, Mich	4	15.4	13.9	13.4	9.8
Grand Rapids, Mich	4	16.5	15	14.5	10.9
Saginaw, Mich	4	16.3	14.8	14.3	8.5
Green Bay, Wis	5	17.2	15.7	14.7	10.8
Milwaukee, Wis	5	16.8	15.3	14.2	10.4
La Crosse, Wis	5	16.9	15.4	14.9	10.5
Minneapolis-St. Paul	5	16.9	15.4	14.9	10.5
Duluth, Minn	5	17.3	15.8	15.3	10.9
Mankato, Minn	5	16.9	15.4	14.9	10.5
Des Moines, Ia	4	15.3	13.8	12.4	*12.9
Sioux City, Ia	4	15.5	14	13.5	*13.1
Davenport, Ia	4	15.5	14	13.5	*13.1
Mason City, Ia	4	15.7	14.2	13.7	*13.3
St. Louis, Mo	*4	15.2	13.7	11.2	9.8
Kansas City, Mo	*4	14.9	13.4	12.9	8
St. Joseph, Mo	*4	14.9	12.4	12	8.5
Fargo, N. D	4	16.9	15.4	14.9	11.5
Minot, N. D	4	18.1	16.6	16.1	12.7
Huron, S. D	*5	17.3	15.8	15.3	*10.9
Wichita, Kans	4	14.4	12.9	11.5	8

*Taxes: in the tax column is included these city and state gasoline taxes at following points: Kansas City, St. Joseph and St. Louis, 1c city tax; South Dakota, 0.1c sales tax. State Kerosine taxes: Indiana, 4c; Iowa, 3c, all included in above prices.

Discount to commercial consumers: Effective Jan. 1, 1935, thru territory, except Michigan effective Feb. 1, on purchases per month, discount off t.w. prices; all gasolines, 25 to 1,000 gals., at t.w. price; 1,000 gals., or more, 1.5c off t.w. on Ethyl and Red Crown, and 1c on Stanolind (latter effective June 9, 1937). Minimum delivery is 25 gals.

S. O. Nebraska

STANDARD RED CROWN GASOLINE

	All Tax	T.W. Total	Dealer Total	Kerosine T.W.
Omaha, Neb	6	17.9	16.4	10.4
McCook	6	18	14	10
Norfolk	6	18.3	16.8	10.8
North Platte	6	18.7	17.2	11.2
Scottabluff	6	19.4	15.9	11.9

Discounts to commercial consumers: for tank wagon deliveries covered only by Standard Commercial Consumer Contract, effective January 1, 1935.

S. O. Louisiana

ESSOLENE

	Consumer Tank Car	Dealer T.W.	Taxes	Posted S.S.	Kerosine T.W.
Little Rock, Ark	8.5	11	7.5	**	11.5
Alexandria, La	8.5	11	8	**	*12
Baton Rouge, La	8	10.5	8	22	*12
New Orleans, La	8	10.5	*10	24	*13
Lake Charles, La	9	11.5	8	**	*12.5
Shreveport, La	7.5	10	8	**	*9.5
Lafayette, La	9	11.5	8	**	*13
Bristol, Tenn	11	12.25	8	**	14.5
Chattanooga, Tenn	10.5	13	8	**	13.5
Knoxville, Tenn	11	13.5	8	**	14
Memphis, Tenn	9	11.5	8	**	12
Nashville, Tenn	10	12.5	8	**	11

*New Orleans gasoline tax includes 7c state, 1c federal, and 2c parish tax. Louisiana kerosine prices include 1c state tax; in addition New Orleans has 1c parish tax.

**S. O. Louisiana transferred stations to dealers; no prices available.

Price basis to dealers: Undivided dealers get dealer price, less 0.5c.

Price basis to commercial consumers: Effective May 15, 1937, thru territory; commercial consumers taking 50 gals. or more at one time will be billed at posted consumer t.w. price; those taking less than 50 gals. at one time will be billed at 4c per gal. over posted consumer t.w. price. Generally, the posted consumer t.w. price will be equivalent to the dealer price less 0.5c per gal.

Humble Oil & Refining Co.

HUMBLE MOTOR FUEL

	T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
Dallas, Tex	8.5	5	13.5	17	8
Ft. Worth, Tex	8.5	5	13.5	17	8
Houston, Tex	9.5	5	14.5	18.5	8
San Antonio, Tex	8.5	5	13.5	17	8

U. S. Motor Gasoline (*Third Grade*)

Dallas, Tex	7	5	12	14
Ft. Worth, Tex	7	5	12	14
Houston, Tex	8.5	5	13.5	16.5
San Antonio, Tex	7	5	12	14

Price is t.w. price to all classes of dealers and consumers.

Price basis to dealers: to contract dealers consumer accounts off posted retail price: when posted retail price, including all taxes on Esso motor fuel is: 19.1c per gal. and above discount is 4c; 19c to 18.1c, 3.5c, and 18c and below, 3c. Humble motor fuel, 17.1c and above, 4c; 17 to 16.1c, 3.5c; and 16c and below, 3c; U. S. motor fuel, 15.1c and above, 3c; 15 to 14.1c, 2.5c; and 14c and below, 2c.

Continental Oil

	Conoco Bronze Ex-Tax	All Tax	Dealer Prices Total Conoco Bronze	Dealmand	Kerosine T.W.
Denver, Colo	12.5	5	17.5	16.5	11.5
Grand Junc., Colo	15	5	20	19	15
Pueblo, Wyo	11	5	16	15	10.5
Casper, Wyo	13	5	18	17	11.5
Cheyenne, Wyo	13	5	18	17	13
Billings, Mont	14	6	21	18	15.5
Butte, Mont	13.5	6	19.5	16.5	15.5
Great Falls, Mont	15.5	6	21.5	20.5	15.5
Helena, Mont	15.5	6	21.5	20.5	15.5
Salt Lake City, Utah	14.5	5	19.5	16.5	16
Boise, Ida	15.5	6	21.5	20.5	18
Twin Falls, Ida	15.5	6	21.5	20.5	18
Albuquerque, N. M.	11	†6.5	17.5	16.5	12
Roswell, N. M.	12	†6.5	18.5	15	10.5
Santa Fe, N. M.	13	*7	20	16.5	12
Muskogee, Okla	10	5	15	13	7
Oklahoma City, Okla	9	5	14	11	8
Tulsa Okla	9	5	14	11	7
Ft. Smith, Ark	10.5	5	15.5	13.5	10
Little Rock, Ark	10.5	7.5	18	16	9.5
Texarkana, Ark	10.5	5	15.5	12.5	8.5

†Includes city tax of 0.5c.
*Includes 1c city tax.

S. O. California

STANDARD GASOLINE

	T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
San Francisco, Cal	13.5	4	17.5	18.5	11.5
Los Angeles, Cal	13	4	17	18	9
Fresno, Cal	14.5	4	18.5	19.5	12
Phoenix, Ariz	15	6	21	22	†16
Reno, Nev	15	5	20	21	13
Portland, Ore	14	6	20	21	13.5
Seattle, Wash	14	6	20	21	13.5
Spokane, Wash	17	6	23	24	16.5
Tacoma, Wash	14	6	20	21	13.5

FLIGHT GASOLINE (*Third Grade*)

San Francisco, Cal	12	4	16	17	....
Los Angeles, Cal	11.5	4	15.5	16.5	....
Fresno, Cal	13	4	17	18	....
Reno, Nev	13.5	5	18.5	19.5	....
Phoenix, Ariz	13.5	6	19.5	20.5	....
Portland, Ore	12.5	6	18.5	19.5	....
Seattle, Wash	12.5	6	18.5	19.5	....
Spokane, Wash	15.5	6	21.5	22.5	....
Tacoma, Wash	12.5	6	18.5	19.5	....

†Includes 5c state tax.

Discount to dealers: on gasoline, off t.w. price on Standard Ethyl and Standard Gasoline, to 100% dealers, 3c; to split dealers, 2c; on Flight gasoline, both 100% and split dealers, 2c.

On Stanavo Aviation Gasoline, to all classes of dealers, 3c off t.w.

To commercial consumers: off tank wagon price: on single deliveries of 40 gallons and over, Stanavo Aviation, Standard Ethyl and Standard Gasolines, 3c. Flight Gasoline, 2c per gallon. Tank wagon delivery, less than 40 gals., 1c per gal. above posted t.w. price.

On kerosine in tank car, transport truck and trailer delivery, 3c off t.w. price; plant deliveries to jobbers, 2.5c below t.w.

Canada

PRICES OF IMPERIAL OIL LTD.

Per Imperial Gallon, which is 1.2 U. S. Gallons

3-STAR IMPERIAL GASOLINE

	T.W.	Taxes	Total T.W.	Kerosine T.W.
Hamilton, Ont	16	6	22	17
Toronto, Ont	16	6	22	17
Brandon, Man	22.8	7	29.8	22.3
Winnipeg, Man	21.2	7	28.2	20.7
Regina, Sask	22.5	7	29.5	22
Saskatoon, Sask	25.3	7	32.3	24.8
Edmonton, Alta	22.5	7	29.5	24.2
Calgary, Alta	20	7	27	21.5
Vancouver, B. C.	16	7	23	23
Montreal, Que	15	6	21	17.5
St. John, N. B.	16	8	24	18.5
Halifax, N. S.	16	8	24	18.5

Note: Imperial Oil Ltd. has completed transfer of service stations to dealers; no s.s. prices available.

Discounts to undivided dealers, 1c off t.w price, except Maritime Provinces where undivided dealers pay t.w. price. Divided dealers pay t.w. price, thru territory.

Aviation Gasoline

Following are tank car and/or tank wagon prices of aviation gasoline in principal marketing territories (Stanavo aviation in all territories except Continental Oil and unless otherwise noted). Tax column includes 1c federal tax, and state tax; also municipal taxes as indicated in footnotes. Prices in first four territories do not include state or federal taxes.

S. O. NEW JERSEY

	*Ethyl T.C.	Tank Car	T.W.
Bayonne, N. J.	19.5	9.5	12.5
Baltimore, Md.	....	10	12.5
Washington, D. C.	....	....	13.1
Richmond, Va.	....	....	15.2
Greensboro, N. C.	....	....	15.7
Raleigh, N. C.	....	....	17.1
Charleston, W. Va.	....	....	15.2

*This is Stanavo Ethyl Aviation Gasolin 100 octane number, tank car price.

COLONIAL BEACON OIL CO.

	T.W.
Brooklyn, N. Y.	12.8
Buffalo, N. Y.	14.1
Boston, Mass.	15

S. O. PENNSYLVANIA

Philadelphia, Pa.	12.8
Pittsburgh, Pa.	13.1

S. O. LOUISIANA

New Orleans, La.	13.8
Shreveport, La.	14.1

Prices in above four territories are on a 74 octane grade aviation gasoline except where otherwise noted. An 80 octane product generally brings 0.5c premium and an 87 octane product, 1.5c premium over the 74 octane grade.

Note: S.s. prices in above four territories are generally 6c over t.w. prices. Above t.w. prices are net, with no discounts allowed for quantity purchases. T.w. prices are generally tank car price, plus freight, plus 2.5c per gal.

S. O. OHIO

Thru Ohio

	Consumer T.W.	Tax	Total Consumer T.W.
Stanavo Ethy Aviation:			
73 octane	15.5	5	20.5
80 octane	16.5	5	21.5
87 octane	17.5	5	22.5

Discounts: For delivery on contract to hangar operators and resellers: 2c below consumer posted t.w. price, shown above.

S. O. INDIANA

Chicago, Ill	15	4	19
Detroit, Mich	16.2	4	20.2
Milwaukee, Wisc	15.3	5	20.3
Minneapolis, Minn	15.4	5	20.4
St. Louis, Mo	14.7	*3	17.7
Kansas City, Mo	14.4	*4	18.4
Fargo, N. D	16.4	4	20.4
Huron, S. D	15.8	5	20.8

*Includes 1c city tax.
**Includes 0.1c to cover.

HUMBLE OIL & REFINING CO.

	Tank Car
Baytown, Tex. (exclusive of taxes)	8.5

CONTINENTAL OIL CO.

	Dealer	Tax	Total Dealer
Denver, Colo	15.5	5	20.5
Cheyenne, Wyo	16	5	21
Helena, Mont	18.5	6	24.5
Salt Lake City, Utah	17.5	5	22.5
Albuquerque, N. M.	14	*6.5	20.5

*Includes city tax of 0.5c.

S. O. CALIFORNIA

Phoenix, Ariz	17	6	23
Los Angeles, Cal	15	4	19
San Francisco, Cal	15.5	4	19.5
Reno, Nev	17	5	22
Portland, Ore	16	6	22
Seattle, Wash	16	6	22
Spokane, Wash	19	6	25

Note: For discounts, etc., see note under Standard and Flight gasoline above.

TANK WAGON MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect Sept. 20, 1937, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

Naphtha (In Tank Wagon)

S. O. NEW JERSEY

Posted Tank Wagon Prices

	Mineral Spirits	V.M.&P.
Newark, N. J.	12.5	15.5
Baltimore, Md.	15.5	....
Washington, D. C.	15	....

Discounts: Buyers taking following quantities, at one time, get these discounts: Newark, 2c per gal. on 200 gals. or more; less than 200 gals., 0.5c higher price. Baltimore 2c off on 25 to 100 gals. and 3c on over 100 gals. Washington, 2c off to contract buyers.

SOCONY-VACUUM OIL CO.

Buffalo, N. Y.	13	14
New York City	11	12
Rochester, N. Y.	12	15
Syracuse, N. Y.	14	15
Boston, Mass.	13.5	14
Bridgeport, Conn.	12.5	14
Hartford, Conn.	12	13.5
Providence, R. I.	13.5	14.5

ATLANTIC REFINING CO.

Philadelphia, Pa.	11.5	12.5
Lancaster, Pa.	13	14
Pittsburgh, Pa.	12.5	14.5

Note: Prices for Mineral Spirits also apply to Stoddard Solvent; and prices for V.M.&P. Naphtha apply also to Light Cleaners Naphtha.

S. O. OHIO

	S.R. Solvent	V.M.&P. Naphtha
Thru Ohio	13.25	13.75

Note: V.M.&P. Naphtha prices also apply on Dry Cleaners naphtha and special Varnolene; Varnolene and Sohio Solvent 0.5c below these prices. Discounts to contract consumers, off t.w. price: 300 to 999 gals., 0.5c; 1,000 to 2,499 gals., 0.75c; 2,500 to 4,999 gals., 1c; 5,000 or more gals., 1.5c.

S. O. INDIANA

(Prices include state and federal taxes)

	Oleum Spirits	V.M.&P. Naphtha	Staniso
Chicago, Ill.	15.8	16.1	15.5
Detroit, Mich.	19.2	18.2	19.3
Kansas City, Mo.	14.4	15.4	14.4
St. Louis, Mo.	14.7	15.7	14.6
Milwaukee, Wis.	19.3	20.3	19.3
Minneapolis, Minn.	19.4	20.4	18

Note: Prices for V. M. & P. apply also to Light Cleaners Naphtha. All prices, with exception of Missouri points, include state tax. Prices shown are base prices, before discounts.

Naphtha (In Tank Cars)

In Tank Cars (F. o. b. refinery or seaboard terminal except Ohio, delivered price.)

	V.M.&P. Naphtha	Solvent
Baltimore	11	10
New York Harbor	11	9.5–10
Philadelphia district	11	10
Boston	10.5	10
Providence	10.5	10
Ohio points, delivered	9.75	*9.25

*This is on S.R. solvent.

Note: In Ohio, prices on D.C. naphtha and special Varnolene are same as V.M.&P.; on Varnolene and Sohio Solvent, prices are 0.5c less than on V.M.&P.

Latest Changes

From Sept. 14 to Sept. 20 inclusive. Dates and amounts of changes shown. See table for full current prices.

Socony-Vacuum Oil—Socony Mobilgas:
Binghamton, Consumer t. c. cut 0.45c, Sept. 18.

Corrections

Notation of amount of change and dates not previously shown in table. Table in this issue is corrected to show these changes.

S. O. Kentucky—Crown:
Mobile, up 2c, Sept. 10.

Kyso:
Mobile, up 1.5c, Sept. 10.

Kerosine:
Miami, up 2c, Sept. 2.

S. O. Nebraska—All Gasolines:
McCook, dealer price cut 3.1c, Sept. 5.

Blaustein Will Sets Up Charity Fund

BALTIMORE, Md., Sept. 20.—A half million dollar trust fund for charity is one of the outstanding provisions of the will of the late Louis Blaustein, founder of the American Oil Co., which has been filed here for probate.

The fund, to be known as the "Louis and Henrietta Blaustein Foundation," is to be managed by a board to be selected by Mr. Blaustein's widow, Henrietta G. Blaustein; his son, Jacob Blaustein, and his two daughters, Mrs. Alvin Thalheimer and Mrs. Henry A. Rosenberg. Its spending is to be left entirely to the discretion of the board.

In creating the fund, Mr. Blaustein said in his will: "During my lifetime I have given substantial sums of money to charity and for other worthy causes. I want to make some provision so that this kind of assistance can continue after my death, but I do not want to make the mistake of freezing sums or income to causes or work which may later become unnecessary or unworthy."

The foundation is to be incorporated within 10 months from the date of probate, according to terms of the will. Provision for such a foundation is said to be the most advanced thinking in charitable bequests.

The board, at its discretion may spend the income or any part of the principal in any way, or at any time they may see fit, although the will suggests that not more than 5 per cent of the principal be used in any one year, in addition to the income. The only direct stipulation made in the will was that the foundation's work be not confined as to race or religion.

It is said that for a number of years Mr. Blaustein was one of the largest contributors in Maryland to various charitable causes.

The residue of the estate is to be left in four equal parts to the widow and the three children. The estate under the will is not expected to exceed $3,000,000, as Mr. Blaustein previously disposed of his fortune through trusts set up for his family and through gifts made to various causes.

Mr. Blaustein came to this country as a penniless youth, and obtained a position as a kerosine salesman. He stayed in the petroleum business the remainder of his life, organizing the American Oil Co. in 1910, with one horse and a wagon as his sole equipment.

He is credited with being one of the first, if not the first, to bring out high test gasoline, and this, plus his marketing ability, are regarded as the chief factors in the growth of his company and the fortune which he amassed.

The exact value of his estate, before being divided up, could not be learned, but it is known to have been large. His holdings in the Pan American Petroleum & Transport Co. were said early this year to exceed $11,000,000, and he was interested in a score of other companies, as well as being chairman of the board and chief executive officer of the American Trading and Production Corp., a family company operating the Blaustein investments.

At the time of his death at Atlantic City July 27, Mr. Blaustein was a member of the boards and executive committees of the Pan American Petroleum & Transport Co., American Oil Co., Pan American Refining Corp., the Mexican Petroleum Corp., Pan American Production Co., Pan American Pipe Line Co., and Lord Baltimore Filling Stations.

Football Rules By Ohio Oil

FINDLAY, O., Sept. 20.—An illustrated football rules book for 1937, detailing and illustrating new rules for this season's play, is a timely bit of advertising put out by the Ohio Oil Co. The booklet also lists the game schedules of the Big Ten universities and of Texas University.

The back cover calls attention to the company's travel bureau, where information on routes or highways to any of the football games is available. The cover advertises Marathon gasoline and motor oil.

California Dealer Leader

LOS ANGELES, Sept. 20. — Paul C. Davis, operator of two retail outlets in the Hollywood district, has been named president of the Retail Petroleum Dealers Ass'n. (southern California), to succeed W. B. Wylie, who was made executive secretary in complete charge of the association's field activities.

The new president has had more than 12 years experience in petroleum marketing, most of which was in Iowa where he started as salesman for a distributor of The Texas Co. He was with Sinclair Refining Co. and Mid-Continent Petroleum Corp. prior to moving to Los Angeles.

SEABOARD MARKETS, EXPORT AND COASTWISE

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days). In cargo markets, spot shipment is 90 days. Prices in cents per gallon, except heavy fuel oil in dollars per barrel, in tank car lots, f.o.b. refineries or seaboard terminals in districts designated, unless otherwise noted. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

Eastern Domestic

(Inter-refinery and export prices not included.)

MOTOR GASOLINE

Prices Effective	Sept. 20	
District:	*60-64 Oct.	*65 Oct. & Above
N. Y. harbor	7.25 – 7.75	7.50 – 8.00
†N. Y. harbor	7.25	7.50
Philadelphia	7.25 – 7.50	7.50 – 7.75
Baltimore	7.25 – 7.75	7.50 – 8.00
Norfolk	7.50 – 7.75	7.75 – 8.00
Wilmington, N. C.	7.50 – 7.75	7.75 – 8.00
Charleston, S. C.	7.50 – 7.75	7.75 – 8.00
Savannah	7.25	7.50
Jacksonville	7.25	7.50
Portland	7.75	8.00
Boston	7.25 – 7.50	7.50 – 7.75
Providence	7.25 – 7.50	7.50 – 7.75

*Prices are nominal. †Barge lots.

WATER WHITE KEROSINE

District:			
N. Y. harbor	6.30	Charleston, S. C.	6.25
*N. Y. harbor	6.125–6.18	Savannah	6.25
Philadelphia	6.25	Jacksonville	6.25
Baltimore	6.25	Portland	6.75
Norfolk	6.25	Boston	6.40
Wilmington, N. C.	6.25	Providence	6.30 – 6.40

*Barge lots.

†FUEL OILS

	N. Y. harb.	N. Y. harb. barges
No. 1	6.30	6.125– 6.18
Nos. 2-3	5.25	5.125
No. 4	5.25	5.125
No. 5	$1.55 –$1.60	.....
No. 6	$1.35	.....

	Phila. dist.	Balt. dist.
No. 1	6.25	6.25
Nos. 2-3	5.00	5.25
No. 4	4.75 – 5.00	5.25
No. 5	$1.475	$1.55
No. 6	$1.30 –$1.35	$1.35

	Bost. dist.	Prov. dist.
No. 1	6.40	6.30 – 6.40
Nos. 2-3	5.40	5.40
No. 4	5.40	5.40
No. 5	$1.55 –$1.60	.....
No. 6	$1.35	.....

†Fuel oils meet specifications of U. S. Commercial Standards CS12-35.

District:	†Bunker C Fuel	†Diesel Oil
N. Y. harbor	*$1.35	**$2.20
Philadelphia	*$1.30 –$1.35	**$2.20
Baltimore	*$1.35	**$2.20
Norfolk	*$1.35	$2.20
Charleston	$1.30	$2.20
Savannah	*$1.30	$2.20
Jacksonville	*$1.30	$2.20
Tampa	*$1.30	$2.20
Portland	$1.45	$2.35
Boston	*$1.35	**$2.25
Providence	$1.35	$2.25

†In ships' bunkers.

	Gas Oil 28-34 Gravity	Diesel Oil Shore Plants
N. Y. harbor	5.25	5.25
Philadelphia dist.	5.00	....
Baltimore dist.	5.25	....
Norfolk dist.	5.25	....
Savannah dist.	....	5.25
Jacksonville dist.	....	5.25

*For barging add 5c per bbl.
**For barging add 6.5c per bbl.

Pacific Export

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gal., except where otherwise noted.)

Prices Effective	Sept. 20	Sept. 13
U. S. Motor, under 65 oct.	6.00 – 6.125	6.00 – 6.125
400 e.p. blend 65 oct. & above	6.125– 6.25	6.125– 6.25
*38-40 w.w. kerosine	4.50 – 4.75	4.50 – 4.75
41-43 w.w. kerosine	4.75 – 5.00	4.75 – 5.00
44 w.w. kerosine	5.00	5.00

*150 fire point.

Prices Effective	Sept. 20	Sept. 13
In Cargo lots, per bbl.		
Diesel fuel, 24° & above	$1.35 –$1.45	$1.35 –$1.45
Diesel fuel, under 24°	$1.30 –$1.35	$1.30 –$1.35
*30-34 diesel (gas oil)	$1.45 –$1.50	$1.45 –$1.50
†Grade C fuel oil	$0.85 –$1.05	$0.85 –$1.05

Note: For San Francisco cargo prices, add 5c per bbl. to above cargo prices.

In Ships' Bunkers, or deep tank lots, per bbl.:		
*Diesel fuel oil	$1.625–$1.65	$1.625–$1.65
†Grade C fuel oil	$1.075–$1.10	$1.075–$1.10

*Pacific specification 200. †Pacific specification 400.

Cased Goods: (Per case)		
U. S. Motor	$1.40 –$1.525	$1.40 –$1.525
400 e.p. blend, 65 oct. & above	$1.50 –$1.625	$1.50 –$1.625
*40-43 w.w. kerosine	$1.25 –$1.325	$1.25 –$1.325
Kerosine, p.w.	$1.20 –$1.30	$1.20 –$1.30

*150 fire point.

New York Export

(Prices in cents per gal. in bbls. F.a.s. New York)

CYLINDER OILS (Pennsylvania Products)

Bright stock:		
Light, 25 p.t.	27.50 –28.50	27.50 –28.50
Dark, 25 p.t.	27.00 –28.00	27.00 –28.00
Neutral oil:		
200 3 color, 25 p.t.	32.00 –32.50	32.00 –32.50
150 3 color, 25 p.t.	27.50 –28.00	27.50 –28.00
600 Warren E filtered	25.00 –25.50	25.00 –25.50
600 s.r., unfiltered	21.50 –22.00	21.50 –22.00
650 s.r., unfiltered	24.00 –24.50	24.00 –24.50
600 fl., s.r.	25.00 –25.50	25.00 –25.50
630 fl., s.r.	29.00 –29.50	29.00 –29.50

Wax, Domestic *and* Export

(Prices in cents per lb. Tests made by A. S. T. M. methods. Melting points shown below, however, are A. M. P., 3° higher than A. S. T. M. (E. M. P.) melting points. Export prices are f.a.s. carload lots. Domestic prices are f.o.b. refineries in New York and New Orleans districts, in bags, carload lots, with 0.2c discount allowed for shipment in bulk. Scale, solid and fully refined, slabs in bags.)

Prices Effective	Sept. 20	
	New York	
	Domestic	Export
124-6 Y.C. scale	2.85	2.85
122-4 W.C. scale	2.90 – 2.95	2.90 – 2.95
124-6 W.C. scale	2.90 – 2.95	2.90 – 2.95
123-5 Fully rfd.	4.45	4.375
125-7 Fully rfd.	4.55	4.50
128-30 Fully rfd.	4.80	4.75
130-2 Fully rfd.	5.05	5.00
133-5 Fully rfd.	†5.50	5.50
135-7 Fully rfd.	†5.75	5.75
	New Orleans	
	Domestic	Export
124-6 Y.C. scale	2.85	2.85
122-4 W.C. scale	2.95	2.95
124-6 W.C. scale	2.95	2.95
123-5 Fully rfd.	4.45	4.375
125-7 Fully rfd.	4.55	4.50
128-30 Fully rfd.	4.80	4.75
130-2 Fully rfd.	5.05	5.00
133-5 Fully rfd.	†5.50	5.50

†Shipment either in bags or in bulk.

Gulf Coast

(Prices are f.o.b. ship at Gulf oil terminals representing opinions of traders, except prices specified to the contrary. Prices cover bulk shipments of 20,000 bbls. or more, unless otherwise noted.)

Prices Effective	Sept. 20	Sept. 13
For Domestic shipment:		
MOTOR GASOLINE		
59 oct. & below	*6.125	*6.125
60-64 oct. number	*6.25	*6.25
65 oct. & above	6.50	6.50
FUEL OILS		
No. 1	5.125– 5.25	5.125
No. 2	4.375	4.25 – 4.375
No. 4	4.125– 4.25	4.125
KEROSINE		
41-43 w.w.	5.125– 5.25	5.125
For Export Shipment:		
GASOLINE		
U. S. Motor	6.125	6.125
60-62, 400 e.p.	6.25	6.25
61-63, 390 e.p.	6.25	6.25
64-66, 375 e.p.	6.375	6.375

*Nominal.

Prices Effective	Sept. 20	Sept. 13
KEROSINE		
44 w.w.	5.375– 5.50	5.375
41-43 w.w.	5.125– 5.25	5.125
41-43 p.w.	5.00 – 5.125	5.00
GAS AND BUNKER OILS		
For Domestic and/or Export Shipment		
‡26-30 translucent gas oil	4.125– 4.25	4.125– 4.25
‡30 plus translucent gas oil	4.375	4.25 – 4.375
‡30 plus transparent gas oil	4.375	4.25 – 4.375
Diesel Oil Ship's bkrs.	†$1.90	†$1.90
Grade C bunker oil, for ship's bunkers	†$1.05	†$1.05
Grade C bunker oil, in cargoes	$0.875–$0.90	$0.90

‡Less than ½ of 1% sulphur. †Barging 5c bbl. additional at some Gulf ports.

MEXICAN CRUDE AND BUNKER OILS
(F.o.b. Steamer, Tampico)

Heavy Panuco crude, taxes to be paid	*$1.10	*$1.15
Grade C bunker oil, ship's bunkers, taxes paid	$1.05	$1.05

MID-CONTINENT LUBRICATING OILS

(Prices in cents per gal. in bbls. f.a.s. Gulf oil terminals. In drums and new barrels, 0.5c to 1c higher per gal. in some instances.)

190-200 vis. D 210 brt. stock	26.50	26.50
150-160 vis. D 210 brt. stock:		
0-10 p.p.	23.50	23.50
10-25 p.p.	23.00	23.00
25-40 p.p.	22.50	22.50
150-160 vis. E 210 brt. stock	22.50	22.50
120 vis. D 210 brt. stock	21.50	21.50
180 vis. No. 3 color neutral:		
0-10 p.p.	16.50	16.50
15-30 p.p.	16.00	16.00
200 vis. No. 3 color neutral:		
0-10 p.p.	17.00	17.00
15-30 p.p.	16.50	16.50
600 s.r. olive green	12.50	12.50
600 s.r. dark green	11.00	11.00
631 s.r.	22.00	22.00

SOUTH TEXAS LUBRICATING OILS

(Vis. at 100° F., pour point 0. Tanker, f.o.b. Gulf oil terminals, for export shipment.)

Unfiltered Pale Oils:		
Vis. Color		
100 No. 3	5.50 – 5.75	5.50 – 5.75
200 No. 3	7.25 – 7.50	7.25 – 7.50
300 No. 3	7.75 – 8.00	7.75 – 8.00
500 No. 3½	8.50 – 8.75	8.50 – 8.75
750 No. 4	9.25 – 9.50	9.25 – 9.50
1200 No. 4	9.75 –10.00	9.75 –10.00
2000 No. 4	10.25 –10.50	10.25 –10.50
Red Oils:		
Vis. Color		
100 No. 5-6	5.50 – 5.75	5.50 – 5.75
200 No. 5-6	7.25 – 7.50	7.25 – 7.50
300 No. 5-6	7.75 – 8.00	7.75 – 8.00
500 No. 5-6	8.50 – 8.75	8.50 – 8.75
750 No. 5-6	9.25 – 9.50	9.25 – 9.50
1200 No. 5-6	9.75 –10.00	9.75 –10.00
2000 No. 5-6	10.25 –10.50	10.25 –10.50

Note: Red oil prices shown above cover oils with green cast; prices for blue cast red oils are slightly lower in some cases.

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 lbs., British sterling; to U. S. ports in cents per bbl.)

Rates Effective Sept. 20

	Crude &/or Fuel		Refined Oil &/or Spirits	
	Last Paid	Owners Ask	Last Paid	Owners Ask
Gulf-U.K./Cont.‡	25/	25/-26/	26/3	27/-28/
Aruba-U.K./Cont.‡	21/6	21/6-22/6	22/6	23/-25/
Gulf-N. Atlantic** (not E. of N. Y.):				
Hvy. Crude & Fuel, (10 to 19.9 gravity)	33c	33c-34c	....	....
Light Crude, (30 Grav. or Lighter)	29c	29c-30c	....	....
Gasoline	....	....	*35c	35c
Kerosine	....	....	*35c	35c
Light Fuel	....	....	36c	36c

Note: Dirty boat quotations are enlarged to cover, "Fuel and Light Crude" quotations.

‡Continental ports in range between Bordeaux and Hamburg, both inclusive.

**Venezuela loading same rate; Tampico 2c to 3c per bbl. additional.

*Nominal.

CRUDE OIL MARKETS

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates as given

EASTERN FIELDS

Posted by Joseph Seep Purchasing Agency

(Effective Sept. 1, 1937, except Corning Sept. 2, 1937)

Penna. Grade Oil in Southwest Penna. Pipe Lines.....$2.30
Penna. Grade Oil in Eureka Pipe Lines (West Virginia).....$2.25
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.).....$2.10
Corning Oil in Buckeye Pipe Lines (Ohio)...$1.27

Posted by Other Companies

Tide Water Pipe Co., Ltd.
Bradford-Allegany district (Penna. and N. Y.) (Effective Sept. 1, 1937).....$2.60
*The Pennzoil Co.: (Effective Sept. 1, 1937)
Penna. Grade Oil in National Transit Lines*$2.60
Ashland Oil & Transportation Co.:
Somerset Oil in Ashland Lines (Ky.):
(Effective Jan. 28, 1937)
Big Sandy River.....$1.42
Kentucky River.....$1.50

*The Pennzoil Co. posts $2.60 in Cochran, Franklin, Hamilton and Doolittle, Pa. fields; prices in other lower districts range down to $2.55 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co.

Midland, Midland County (July 23, 1937)...$1.27

Posted by Simrall Pipe Line Corp.

(Effective July 22, 1937)
West Branch, Arenac, and equal grades.....$1.09
(Effective July 23, 1937)
Beaverton, Crystal, Greendale, Porter and equal grades.....$1.27
Buckeye.....$1.245
(Effective July 1, 1937)
Billings and Tobacco.....$1.395

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

(Effective Jan. 28, 1937)

Illinois, Princeton.....$1.35
Lima.....$1.25
Owensboro (Western Ky.).....$1.40

Posted by Stoll Oil Refining Co.

(Effective Feb. 1, 1937)

Stoll Pipe Line Oil (Ky.).....$1.40

CANADIAN FIELDS

Posted by Imperial Oil Limited

Western Ontario

(Effective Sept. 9, 1933)

Petrolia.....$2.10
Oil Springs.....$2.17

Alberta—Turner Valley

(Prices f.o.b. field tankage)
(Effective Sept. 1, 1937)

Clear Naphtha, 65 grav. & above.....$2.36

Crude Oil & Discolored Naphtha

40-40.9°	$1.36	53-53.9	$1.62
41-41.9	1.38	54-54.9	1.64
42-42.9	1.40	55-55.9	1.66
43-43.9	1.42	56-56.9	1.68
44-44.9	1.44	57-57.9	1.70
45-45.9	1.46	58-58.9	1.72
46-46.9	1.48	59-59.9	1.74
47-47.9	1.50	60-60.9	1.76
48-48.9	1.52	61-61.9	1.78
49-49.9	1.54	62-62.9	1.80
50-50.9	1.56	63-63.9	1.82
51-51.9	1.58	64-64.9	1.84
52-52.9	1.60	65° & higher, for discolored naphtha only	2.36

Note: Clear naphtha: 22 color; 10 lbs. vapor pressure, Reid method; 90% recovery; end point, 410°. Discolored naphtha: same specifications as for clear naphtha except color.

MID-CONTINENT

Posted by Stanolind Crude Oil Purchasing Co., Jan. 28, 1937

	(In Oklahoma-Kansas)	(In North-North Central Texas)
Below 29	$1.06	$0.96
29-29.9	1.08	0.98
30-30.9	1.10	1.00
31-31.9	1.12	1.02
32-32.9	1.14	1.04
33-33.9	1.16	1.06
34-34.9	1.18	1.08
35-35.9	1.20	1.10
36-36.9	1.22	1.12
37-37.9	1.24	1.14
38-38.9	1.26	1.16
39-39.9	1.28	1.18
40 & above	1.30	1.20

Above Stanolind prices met as follows:

Jan. 28, Continental Oil Co. met in Okla., Kans., and North Texas. Sinclair-Prairie met in North Texas and North Central Texas, Jan. 28, Stanolind's North Texas schedule. Same date, The Texas Co. met in North-North Central Texas.

Note: Stanolind prices in Okla.-Kans. are for quantities computed by 97% tank tables. In Texas, 99% tank tables are used, volume corrected to 60° F., and deduction for full b.s. & w. content.

*Effective Aug. 1, 1937, for Otis-Albert pools Rush-Barton counties, Kans., 13c less.

Posted by Carter Oil Co.

In Oklahoma

(Effective Jan. 28, 1937)

Below 25	$0.98	33-33.9	$1.16
25-25.9	1.00	34-34.9	1.18
26-26.9	1.02	35-35.9	1.20
27-27.9	1.04	36-36.9	1.22
28-28.9	1.06	37-37.9	1.24
29-29.9	1.08	38-38.9	1.26
30-30.9	1.10	39-39.9	1.28
31-31.9	1.12	40 and above	1.30
32-32.9	1.14		

Above Carter schedule met Jan. 28 by the following companies: Sinclair-Prairie, Shell and Barnsdall in Oklahoma-Kansas; Skelly Oil in Kansas; Tide Water in Oklahoma; Pure Oil in Oklahoma-Kansas, beginning with below 24 at $0.98 and ending with 40 & above at $1.30.

Posted by Magnolia Petroleum Co.

(Effective Jan. 28, 1937)

In Oklahoma, same schedule as Carter Oil, which see above, beginning with below 25, at $0.98 and ending with 40 & above, at $1.30.

In Texas: North and North Central, including Burkburnett, Archer, Henrietta, Electra, Comanche and Olden, same gravity and price schedule as Stanolind in North Texas, which see under Stanolind, beginning with below 29 at $0.96 and ending with 40 and above, at $1.20.

Posted by Humble Oil & Refining Co.

TEXAS FIELDS

(*West Central Texas)

(Effective Jan. 28, 1937)

Below 29	$0.96	35-35.9	$1.10
29-29.9	0.98	36-36.9	1.12
30-30.9	1.00	37-37.9	1.14
31-31.9	1.02	38-38.9	1.16
32-32.9	1.04	39-39.9	1.18
33-33.9	1.06	40 and above	1.20
34-34.9	1.08		

*Includes Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton and Young counties.

Shell Petroleum Corp., effective Jan. 28, posts Humble's above schedule on Fisher county crude, plus these five lower grades, beginning with below 25 gravity at $0.88; 25-25.9, $0.90; 26-26.9, $0.92; 27-27.9, $0.94, and 28-28.9, $0.96; rest of schedule same as Humble's in West Central Texas.

†Effective Dec. 1, 1934, Humble prices are based on 99% tank tables at 60F. Allowance or deduction of 1% is made for each 25° change in temperature above or below 60F.

*East Central Texas

(Effective Jan. 28, 1937)

Below 29	$1.03	35-35.9	$1.17
29-29.9	1.05	36-36.9	1.19
30-30.9	1.07	37-37.9	1.21
31-31.9	1.09	38-38.9	1.23
32-32.9	1.11	39-39.9	1.25
33-33.9	1.13	40 and above	1.27
34-34.9	1.15		

*Including Anderson, Cherokee, Limestone, Navarro counties.

Same date, Sinclair-Prairie met in Mexia Humble's above schedule.

PANHANDLE TEXAS

Posted by Humble Oil & Refining Co.

(Effective Jan. 28, 1937)

	Gray County	Carson-Hutchinson
Below 35	$0.96	$0.91
35-35.9	0.98	0.93
36-36.9	1.00	0.95
37-37.9	1.02	0.97
38-38.9	1.04	0.99
39-39.9	1.06	1.01
40 & above	1.08	1.03

Jan. 28, above prices met by Sinclair-Prairie and Magnolia in the entire area and by Continental in Carson-Hutchinson and by Texas Co. in Panhandle Sweet, same as Humble's Gray Co. and on Panhandle Sour, same as Carson-Hutchinson.

EAST TEXAS

(Effective May 22, 1937)

Stanolind, Humble, Shell, Sinclair-Prairie, Texas Co., and Magnolia.....$1.35

Shell also posted on Jan. 28, in Livingston area, Polk County, Texas, $1.27.

NORTHEAST TEXAS

(Posted by Humble, Jan. 28, 1937)

Talco.....$0.73

(Posted by Magnolia, Jan. 28, 1937)

Cass County and Panola County, Tex:
Same gravity and price schedule as S. O. Louisiana posts for Rodessa, La., which see under that company.

(Posted by The Texas Co., Jan. 28, 1937)

Cass County.....$1.25

WEST TEXAS AND NEW MEXICO

Posted by Humble Oil & Refining Co.

(Effective Jan. 28, 1937)

(Including Andrews, Crane, Crockett, Ector, Glasscock, Howard, Winkler and Upton Counties, Texas and Lea county, New Mexico).

Below 26	$0.78	33-33.9	$0.94
26-26.9	0.80	34-34.9	0.96
27-27.9	0.82	35-35.9	0.98
28-28.9	0.84	36-36.9	1.00
29-29.9	0.86	37-37.9	1.02
30-30.9	0.88	38-38.9	1.04
31-31.9	0.90	39-39.9	1.06
32-32.9	0.92	40 & above	1.08
Pecos, West Texas			$0.91

Jan. 28, Magnolia met Humble in Crane, Upton, Howard, Glasscock, Mitchell and Winker.

Shell Petroleum Corp., on Jan. 28, met Humble in Crane, Glasscock, Howard, Pecos (except Yates shallow pool), Winkler, and Upton counties, Tex., and in Lea County, N. Mex. On Jan. 28, Shell posted in Yates shallow pool in Pecos county, Tex., $0.81. June 4, 1937, Shell added Ector county to West Texas postings.

Jan. 28, Stanolind Oil & Gas Co. met Humble in Hendrick field, Winkler county.

Jan. 28, Texas Co. met Humble in Ward and Winkler counties, Tex., and Lea County, N. M.

April 20, 1937, Sinclair Prairie met Humble in Ward and Winkler, Tex. and Lea, N. M., counties, except that its gravity schedule ends with 36 and above, at $1.00.

Posted by Continental Oil Co.

(Effective Jan. 28, 1937)

Artesia, Jackson and Maljamar pools, N. M...$0.90

COLORADO

(Posted by Continental Oil Co.,

Effective Jan. 28, 1937)

Ft. Collins and Wellington

Below 29	$1.01	35-35.9	$1.15
29-29.9	1.03	36-36.9	1.17
30-30.9	1.05	37-37.9	1.19
31-31.9	1.07	38-38.9	1.21
32-32.9	1.09	39-39.9	1.23
33-33.9	1.11	40 & above	1.25
34-34.9	1.13		

Cannon City and Florence, Col.....$1.10

SOUTH AND SOUTHWEST TEXAS

Posted by Humble Oil & Refining Co.

(Effective Jan. 28, 1937)

Carroll, Clark, Darst Creek, Hilbig, Salt Flat and Zoboroski fields.....$1.09
Pettus.....$1.37 Van Zandt.....$1.10

(Effective Nov. 1, 1936)

Heyser heavy...$0.90 Placedo heavy..$0.90
Heyser light.....1.15 Taft.....0.95

Shell Pet. Corp. on Jan. 28, posted $1.09 in Salt Flat district, Tex.

Anahuac, Dickinson, Flour Bluff and Turtlebay

(Effective Jan. 28, 1937)

Below 31	$1.16	36-36.9	$1.28
31-31.9	1.18	37-37.9	1.30
32-32.9	1.20	38-38.9	1.32
33-33.9	1.22	39-39.9	1.34
34-34.9	1.24	40 and above	1.36
35-35.9	1.26		

Jan. 28, Magnolia met Humble in Darst Creek; posted $1.00 in Luling; $1.12 in Lytton Springs; $1.27 for Cleveland, Liberty county, Tex.; $1.15 in Hardin, Liberty county, Tex.

Jan. 28, 1937, The Texas Co. met Humble in Darst Creek.

Posted by Humble

Conroe, Raccoon Bend, Tomball and Satsuma

(Deep sand crudes)
(Effective Jan. 28, 1937)

Below 29	$1.20	35-35.9	$1.34
29-29.9	1.22	36-36.9	1.36
30-30.9	1.24	37-37.9	1.38
31-31.9	1.26	38-38.9	1.40
32-32.9	1.28	39-39.9	1.42
33-33.9	1.30	40 & above	1.44
34-34.9	1.32		

Jan. 28, Magnolia met Humble in Tomball and Texas Co. met Humble in Conroe, beginning with 35-35.9 gravity.

Posted by Humble

Mirando, Heavy and Light

(Effective July 6, 1937)

Below 21	$0.96	31-31.9	$1.18
21-21.9	0.98	32-32.9	1.20
22-22.9	1.00	33-33.9	1.22
23-23.9	1.02	34-34.9	1.24
24-24.9	1.04	35-35.9	1.26
25-25.9	1.06	36-36.9	1.28
26-26.9	1.08	37-37.9	1.30
27-27.9	1.10	38-38.9	1.32
28-28.9	1.12	39-39.9	1.34
29-29.9	1.14	40 & above	1.36
30-30.9	1.16		

July 6, Magnolia posted same schedule as Humble in Mirando.

July 6, 1937, Texas Co. posted for Duval-Mirando, $0.96 for below 21, plus 2c differential, to $1.12 for 28 & above.

(Continued on next page)

CRUDE OIL MARKETS

(*Continued from preceding page*)

NORTH LOUISIANA-ARKANSAS

Posted by Standard Oil Co. of Louisiana

(Effective Jan. 28, 1937)

(In Caddo, Homer, Haynesville, Sabine, De Soto, Sarepta, Carterville, El Dorado, Bunkie, and Miller county).

Below 25	$0.90	33-33.9	$1.08
25-25.9	0.92	34-34.9	1.10
26-26.9	0.94	35-35.9	1.12
27-27.9	0.96	36-36.9	1.14
28-28.9	0.98	37-37.9	1.16
29-29.9	1.00	38-38.9	1.18
30-30.9	1.02	39-39.9	1.20
31-31.9	1.04	40 and above	1.22
32-32.9	1.06		

Rodessa, La.

(Effective Jan. 28, 1937)

Below 25	$0.93	33-33.9	$1.11
25-25.9	0.95	34-34.9	1.13
26-26.9	0.97	35-35.9	1.15
27-27.9	0.99	36-36.9	1.17
28-28.9	1.01	37-37.9	1.19
29-29.9	1.03	38-38.9	1.21
30-30.9	1.05	39-39.9	1.23
31-31.9	1.07	40 and above	1.25
32-32.9	1.09		

Choctaw and Darrow

Jan. 28, 1937, initial posting; same schedule as Humble posts in Mirando, Tex., which see.

Smackover, Ark	$0.90
Urania, La. (La. Oil Refg. Co., Jan. 10, '36)	0.97
Tepetate, La. (Continental Oil, Jan. 28, '37)	1.24

Jan. 28, 1937, Magnolia met S. O. La.'s No. La.-Ark. gravity and price schedule in Pine Island, Haynesville, Bull Bayou and Cotton Valley, La., and in Eldorado and Rainbow districts, Ark.; and met S. O. La.'s Rodessa prices; and in Lockport, Iowa, Cameron Meadow, La., posted Humble's gravity and price schedule on Mirando.

Jan. 28, The Texas Co. met S. O. La. in N. La., except that its gravity schedule begins with below 27 at $0.94. It posted $1.37 for Garden Island, La., $1.24 for LaFitte, La. and $0.90 for Smackover.

*GULF COASTAL FIELDS

Posted by Humble Oil & Refining Co. and The Texas Co.

	(Effective Jan. 28, 1937) Humble	Texas	Saxet (Humble) (July 6 '37)
Below 18	$0.95	$0.90	....
18-18.9	for	0.92	....
19-19.9	below	0.94	....
20-20.9	21°	0.96	$1.01
21-21.9	0.98	0.98	1.03
22-22.9	1.01	1.01	1.05
23-23.9	1.04	1.04	1.07
24-24.9	1.07	1.07	1.09
25-25.9	1.10	1.10	1.11
26-26.9	1.13	1.13	1.13
27-27.9	1.15	1.15	1.15
28-28.9	1.17	1.17	1.17
29-29.9	1.19	1.19	1.19
30-30.9	1.21	1.21	1.21
31-31.9	1.23	1.23	1.23
32-32.9	1.25	1.25	1.25
33-33.9	1.27	1.27	1.27
34-34.9	1.29	1.29	1.29
35-35.9	1.31	for	1.31
36-36.9	1.33	oil	1.33
37-37.9	1.35	34°	1.35
38-38.9	1.37	and	1.37
39-39.9	1.39	above.	1.39
40 and above	1.41	....	1.41

Effective Dec. 1, 1934, Humble prices are based on 99% tank tables at 60F. Allowance or deduction of 1% is made for each 25° change in temperature above or below 60F.

*Includes these fields: Barbers Hill, Goose Creek, Hull, Humble, Liberty, Moss Bluff, Mykawa, Orange, Pierce Junction, Plymouth, Rabbs Ridge, Raccoon Bend (shallow sand), Refugio light and heavy, Sour Lake, Spindletop, Sugarland and West Columbia. †Except these grades of Refugio heavy: effective July 6, 1937: Below 20, $0.95; 20-20.9, $1.01; 21-21.9, $1.03; 22-22.9, $1.05; 23-23.9, $1.07; 24-24.9, $1.09; and 25-25.9, $1.11; rest of schedule same as other Gulf Coastal crude.

Jan. 28, Sinclair-Prairie met above Humble schedule in full.

July 6, 1937, The Texas Co. posted for Refugio: $1.01 for below 21, plus 2c differential, to $1.17 for 28 & above. On this same date, it also met Humble on Saxet, except that it pays $1.01 for oil below 21, and ends its schedule at 28-28.9 at $1.17.

ROCKY MOUNTAIN FIELDS

Posted by Stanolind Oil & Gas Co.

(Effective Jan. 28, 1937)

Salt Creek, Midway and Dutton Creek, Wyo., same schedule as Stanolind posts in Oklahoma, Kansas which see under Mid-Continent crude on previous page.

Greybull-Torchlight	$1.30
Iles, light, Col	1.18
Iles, heavy	1.12
Hogback, N. M.	1.33
Big Muddy	1.23
Elk Basin, light	1.30
Grass Creek, light	1.30
Frannie light	0.82

(Effective Nov. 4, 1936)

Grass Creek, heavy	$0.62
Frannie heavy	0.62
Hamilton Dome, Wyo	0.57

Pondera, Mont., (Postings discontinued July 1, 1936, but Stanolind pays price posted by Ohio Oil for Kevin-Sunburst, less 20c per bbl.)

Posted by Ohio Oil Co

(Effective Jan. 28, 1937)

Elk Basin, Wyo	$1.30
Grass Creek, light	1.30
Rock Creek	1.205
Lance Creek	0.97
Sunburst, Mont	1.20

Posted by *International Refg. Co.

Cut Bank, Mont.

(Effective Jan. 28, 1937)

Below 35°	$1.34	38-38.9	$1.42
35-35.9	1.36	39-39.9	1.44
36-36.9	1.38	40 and above	1.46
37-37.9	1.40		

*Texas Co. subsidiary.

Posted by Continental Oil Co.

(Effective Jan. 28, 1937)

Cat Creek, Mont	$1.40
Big Muddy, Wyo	1.18
Lance Creek, Wyo	0.97

CALIFORNIA, *Posted by Standard Oil of California*

All gravities above those quoted take highest price offered in the field. Prices effective Feb. 26, 1936, except Huntington Beach, Playa del Rey, Santa Fe Springs, Kern Front, Signal Hill (Long Beach) effective March 7, 1936, and Elk Hills, effective June 22, 1936

Gravity	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda Brea Canon	Athens Rosecrans	Dominguez	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	‡Newhall and others	Mountain View	Elk Hills	Buena Vista Hills **Midway-Sunset	Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$0.80	0.79	0.74	0.78	0.79	0.80	0.76	....	....	0.80	0.76	0.76	0.77	0.78	....	0.70	....	0.70	0.70	0.65	0.70	0.70	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
17-17.9	.80	.79	.74	.78	.81	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	.82	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	.85	.76	.78	.77	.78	....	.70	.70	.74	.74	.66	.74	.71	.70
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	.88	.78	.82	.77	.80	....	....	.70	.78	.78	.68	.78	.72	.70
21-21.9	.88	.79	.74	.89	.93	.93	.88	....	....	.91	.80	.85	.77	.84	.78	....	.73	.82	.82	.71	.82	.74	.70
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	.93	.84	.89	.79	.88	.78	....	.77	.87	.87	.74	.86	.78	.72
23-23.9	.95	.86	.77	.96	.99	1.02	.96	.84	.79	.96	.88	.93	.82	.92	.78	— —	.80	.92	.92	.77	.90	.82	.76
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	.99	.91	.96	.85	.96	.82	....	.84	.97	.97	.80	.94	.86	.79
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	1.02	.95	....	.89	.99	.86	....	.88	1.01	1.01	.83	.98	.90	.83
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	1.05	.98	....	.92	1.03	.90	....	.91	1.06	1.06	.86	1 02	....	....
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	1.02	....	.96	1.06	.95	....	.95	1.10	1.10	.88	1.06	....	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	1.06	....	.99	1.10	.99	....	.99	1.15	1.15	.91	1.10	....	....
29-29.9	1.17	1.15	.93	1.18	1.18		1.17	1.12	.93	....	1.09	....	1.03	1.14	1.03	— —	1.02	1.20	1.20	.94	1.14	....	....
30-30.9	1.21	1.19	.95	1.22	1.21		1.21	1.17	.95	....	....	....	1.07	1.17	1.08	....	1 06	1.25	1.25	.97	1.18	....	....
31-31.9				....	1.24		1.24	1.22	.97	....	....	....	1.11	1.21	1.12	....	1.09	1.29	1.29	.99			
32-32.9	*Elwood Terrace			....	1.27		1.27	1.27	1.00	....	....	....	1.14	1.25	1.16	....	1.13	1.34	1.34	1.02	Kettleman Hills		
33-33.9	....	1.28	....	....	....		....	1.32	....	....	....	....	1.18	1.28	1.20	....	1.17	1.38	1.38	1.04	....	1.19	....
34-34.9	....	1.32	....	....	....		....	1.37	....	....	....	....	1.22	1.32	1.25	....	1.20	....	....	....	....	1 23	....
35-35.9	....	1.35	....	....	....		....	1.42	....	....	....	....	1.25	....	1.29	....	....	....	....	....	....	1.27	....
36-36.9	....	1.39	....	....	....		....	1.46	....	....	....	....	1.29	....	1.33	....	....	....	....	....	....	1.31	....
37-37.9	....	1.43	....	....	....		....	1.51	....	....	....	....	1.32	....	1.37	....	....	....	....	....	....	1.35	....
38-38.9	....	....	....	....	....		....	1.56	....	....	....	....	1.36	....	1.42	....	....	....	....	....	....	1.39	....
39-39.9	....	....	....	....	....	F.O.B. Standard Pipe Line	..	1.61	....	....	....	....	1.40	....	....	....	....	....	....	....	....	1.43	....
40-40.9	....	....	....	....	....		....	1.66	....	....	....	....	1.43	....	....	....	....	....	....	....	....	....	....

*F. o. b. ship.

‡Also McKittrick, Kern River, Kern Front and Round Mountain $0.70 thru 19.9 gravity; no higher gravity quoted. **Except Lakeview Area.

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High Spots Of Next Week's Meetings

Petroleum Refiners and Marketers Credit Groups of Eastern and Western Pennsylvania, Joint Conference, The Nittany Lion Inn, State College, Pa., Sept. 27.

Sept. 27, Morning:
"The Advisability of Increasing Credit Limits to Reduce Operating Costs", by H. R. Wakefield, Sun Oil Co., Philadelphia.
"Guaranties", by R. R. McCoy, Gulf Oil Corp., Pittsburgh.
"Use and Misuse of Cash Discounts", by T. M. Demarest, Conewango Refining Co., Warren, Pa.
"Methods of Recording the Progress of the Credit Department", by William Stockton, Atlantic Refining Co., Philadelphia.
"Normal Ratios for Tank Car Buyers and Distributors in the Oil Business", by Alexander Wall, Robert Morris Associates.

American Gas Assn., 19th annual meeting, Hotels Statler and Cleveland, Cleveland, O., Sept. 27 to Oct. 1.

Sept. 27, Afternoon:
"2000 *Years of Progressive Evolution of the Worker"*, by A. A. Nichoson, The Texas Corp., New York.
Sept. 29, Afternoon:
"Polymerization—What It Means to the Gas Industry", by F. E. Frey, Phillips Petroleum Co., and J. S. Carey, M. W. Kellogg Co.
Sept. 30, Afternoon:
"Corrosion of Metals in Soils as a Factor in the Selection of Pipe Materials", by Dr. Scott Ewing, National Bureau of Standards, Washington, D. C.

National Assn. of Petroleum Retailers, 5th Annual Convention, Powers Hotel, Rochester, N. Y., Sept. 27 to Oct. 1.

Sept. 28, Afternoon:
"Diversification of Sales", by J. S. Keller, Chek-Chart Corp., Chicago.
"Chiseling and What It Costs", by William E. Gerwe, Socony-Vacuum Oil Co., Inc., Chicago.
Sales Clinic, with 12 short talks on specialties.
Sept. 29, Afternoon:
"Trade Laws and Regulations", by Dr. Willard L. Thorpe, Dun & Bradstreet, New York.
Evening:
"Our Future", by Wilmer R. Schuh, president of the association.

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Society of Automotive Engineers, National Regional Fuel and Lubricants Meeting, Mayo Hotel, Tulsa, Sept. 30, Oct. 1.

Sept. 30, Morning:
"The Development of the Diesel Around Oil Country Problems", by C. L. Cummins, Cummins Engine Co.
"Economic Place of Automotive Oil Engines", by A. F. Campbell, Waukesha Motor Co.
Evening:
"Observations of One Year's Lubrication Experience with Hypoids in the Low-Price Brackets and Related Commentaries", by Robert K. Floyd, Frank Harris Floyd, Inc.
Oct. 1, Morning:
"Some Improvements Relating to Seasonal Gasoline and Lubricating Oil", by R. C. Alden and D. G. Proudfoot, Phillips Petroleum Co.
"Essentials of Fuel Utilization in Diesel Engines of the Automotive Type", by Robert D. Best, Continental Oil Co.

Coming Meetings

General Expositions

The Greater Texas and Pan American Exposition, Dallas, June 12 to Oct. 31.
The Great Lakes Exposition, Lake Front, Cleveland, Ohio, May 29 to Sept. 26.

Oil Meetings—Expositions

Credit Men's Assn. of Eastern Pennsylvania, Philadelphia and Pittsburgh Petroleum Groups, Nittany Lion Inn, State College, Pa., Sept. 27.
National Assn. of Petroleum Retailers, fifth national convention, Powers Hotel and Exposition Park, Rochester, N. Y., Sept. 27 to Oct. 1.
American Gas Assn., 19th annual convention, Cleveland, Ohio, Sept. 27 to Oct. 1.
Society of Automotive Engineers, regional transportation meeting, Blackstone Hotel, Chicago, Ill., Sept. 29, 30 and Oct. 1.
Society of Automotive Engineers, Fuel and Lubricants Regional meeting, Mayo Hotel, Tulsa, Okla., Sept. 30 and Oct. 1.
National Lubricating Grease Institute, Fifth annual convention, Blackstone Hotel, Chicago, Ill., Oct. 4 and 5.
American Society of Mechanical Engineers, Erie, Pa., Oct. 4, 5 and 6.
Chicago Exposition of Power and Mechanical Engineering, New International Amphitheatre, Chicago, Ill., Oct. 4 to 9.
Ohio Petroleum Marketers Assn., fall conference, Hotel Carter, and golf tournament, Westwood Country Club, Cleveland, Oct. 6 and 7.
Virginia Oil Men's Assn., annual fall convention, Chamberlain Hotel, Old Point Comfort, Va., Oct. 7 and 8.
Society of Automotive Engineers, National Aircraft Production meeting, Ambassador Hotel, Los Angeles, Calif., Oct. 7, 8 and 9.
26th National Safety Congress and Exposition, Kansas City, Mo., Oct. 11 to 15.
National Oil Marketers Assn., Stevens Hotel, Chicago, Ill., Oct. 12, 13 and 14.
Oil-World Exposition, Inc., Houston, Texas, Oct. 11 to 16.
Interstate Oil Company Commission, Houston, Texas, Oct. 14 and 15.
25th Annual Conference on Taxation, auspices New England State Tax Officials Association, Hanover, N. H., Oct. 15 and 16.
Independent Petroleum Assn., of America, Houston, Tex., Oct. 14, 15 and 16.
American Assn. of Petroleum Geologists, mid-year meeting, William Penn Hotel, Pittsburgh, Pa., Oct. 14, 15 and 16.
American Welding Society, 18th annual meeting and welding exposition, Atlantic City, N. J., Oct. 18 to 22.
American Institute of Mining and Metallurgical Engineers, Atlantic City, Oct. 18 to 23.
National Tax Assn., 30th annual conference, The Lord Baltimore Hotel, Baltimore, Md., Oct. 25 to 28.
Indiana Independent Petroleum Assn., annual convention, Hotel Severin, Indianapolis, Oct. 27, 28.
Society of Automotive Engineers, annual dinner, Commodore Hotel, New York City, Oct. 28.
Mid-Continent Oil & Gas Assn. of Texas, annual meeting and convention, Dallas, Texas, Oct. 29 and 30.
National Automobile Show, Grand Central Palace, New York City, Oct. 27 to Nov. 3.
Society of Automotive Engineers, Regional Transportation Meeting, Newark, N. J., Nov. 6 to 12.
American Petroleum Institute, 18th annual meeting, Stevens Hotel, Chicago, Ill., Nov. 8 to 12.
Oil Traders Assn. of New York, New York, Nov. 16.
American Institute of Chemical Engineers, annual meeting, St. Louis, Mo., Nov. 17, 18 and 19.
National Asphalt Conference, Memphis, Tenn., week of Dec. 6.
Exposition of Chemical Industries, Grand Central Palace, New York, N. Y., Dec. 6 to 11.
Society of Automotive Engineers, National Production Meeting, Hotel Durant, Flint, Mich., Dec. 8, 9 and 10.

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SEPTEMBER 29, 1937

NATIONAL PETROLEUM NEWS

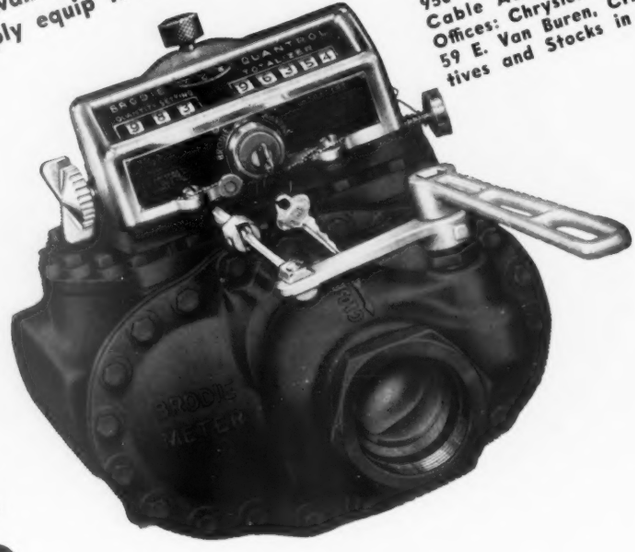
HOW TO MAKE ANY TANK-TRUCK DO A LOT MORE WORK

BRODIE QUANTROLS

The certainty, speed and accuracy with which Brodie Quantrols operate are what makes them so valuable in petroleum product distribution. Being automatic, they make a big hit with the drivers—for they do a lot of his work for him. As a matter of fact, they eliminate so much detail and delay that trucks make each delivery quicker. As a result, a Quantrol-equipped truck can handle, without rushing, at least 25% more territory each day. Besides keeping trucks "on the go," Quantrols prevent needless waste of stock and simplify accounting. If you want your trucks to do a lot more work, simply equip them with Brodie Quantrols.

HELPS YOU KEEP YOUR TRUCKS "ON THE GO"

RALPH N. BRODIE CO., Inc.
950-61st Street, OAKLAND, California
Cable Address: "BRODICO". Division Offices: Chrysler Bldg., NEW YORK CITY; 59 E. Van Buren, CHICAGO. Representatives and Stocks in All Principal Cities.



ADVERTISING PAGES REMOVED

THE extra capacity of this trailer pays extra dividends on every trip, but costs nothing extra to haul. It rides in place of 2½ tons of discarded dead weight, trimmed off by lightweight design and COR-TEN construction.

In bulk transport equipment, the true measure of efficiency is the amount of payload you can carry per pound of dead weight. Here, COR-TEN construction achieves a maximum capacity-weight ratio on a thoroughly practical, self-liquidating basis. COR-TEN, by converting parasite poundage into added payload capacity, saves in hauling costs, quickly pays for itself . . . continues to produce extra revenue as long as the equipment lasts.

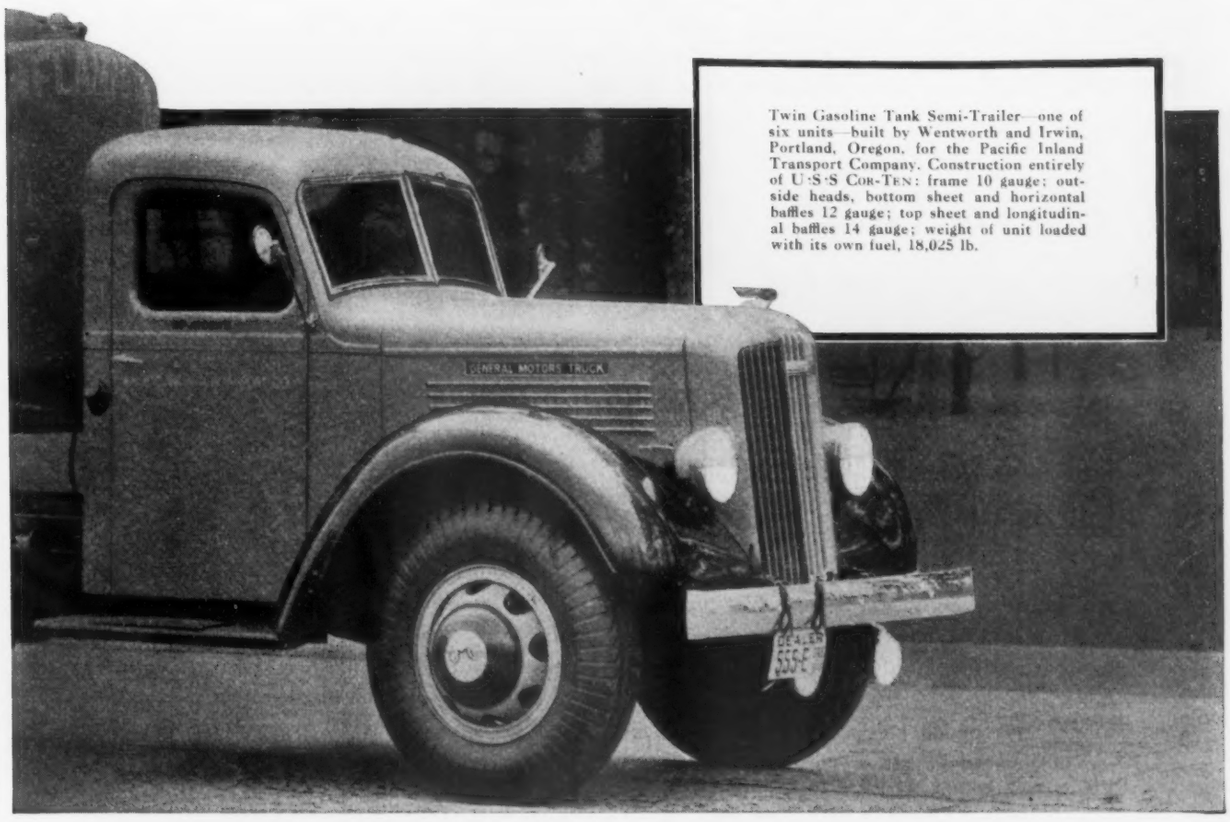
When they selected U·S·S COR-TEN, builders and operators had three objectives in mind:

THEY WANTED LESS WEIGHT — EQUAL DURABILITY. U·S·S COR-TEN gave them both. Because it has a yield point almost twice that of mild steel—because it has 4 to 6 times the atmospheric corrosion resistance, COR-TEN can be used in lighter sections, giving a weight reduction of approximately 25%, and still carry the same load—with no sacrifice of strength, safety, or service life.

THEY WANTED AN INEXPENSIVE MATERIAL—COR-TEN kept their material costs down. For COR-TEN is a low-cost, tonnage-grade steel, given its superior properties by low percentages of alloying elements. And remember lightweight construction always means fewer pounds of steel to buy.

THEY WANTED TO KEEP CONSTRUCTION COSTS LOW. COR-TEN did it. Because COR-TEN is ductile as well as strong—has working and forming qualities comparable to those of plain steel—can be fabricated by the usual shop methods. These are important considerations in construction, maintenance and repair costs.

To find out how U·S·S COR-TEN and other U·S·S High Tensile Steels —U·S·S Stainless and U·S·S MAN-TEN—can be economically applied to modernize your equipment, make it lighter, stronger, more enduring, less expensive to operate, write us. Address nearest district sales office.



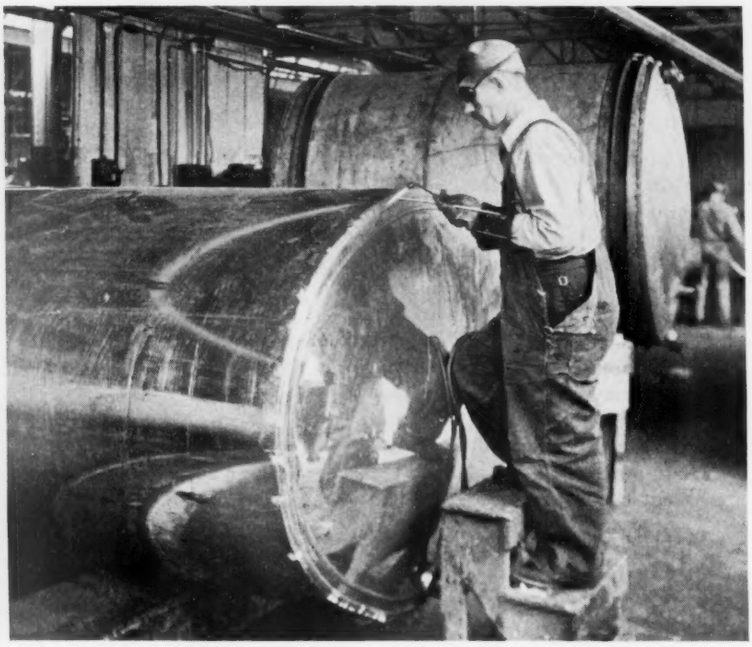
Twin Gasoline Tank Semi-Trailer—one of six units—built by Wentworth and Irwin, Portland, Oregon, for the Pacific Inland Transport Company. Construction entirely of U·S·S COR-TEN: frame 10 gauge; outside heads, bottom sheet and horizontal baffles 12 gauge; top sheet and longitudinal baffles 14 gauge; weight of unit loaded with its own fuel, 18,025 lb.

U·S·S HIGH TENSILE STEELS

AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION · *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY · *San Francisco*
NATIONAL TUBE COMPANY, *Pittsburgh*
TENNESSEE COAL, IRON & RAILROAD COMPANY · *Birmingham*
Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

FIRM FOUNDATIONS FOR TRUCK OPERATING ECONOMY



HOW KNOW-HOW HELPS YOU GET ECONOMY

This is an advertisement about a group of men altogether unconnected with Aluminum Company of America

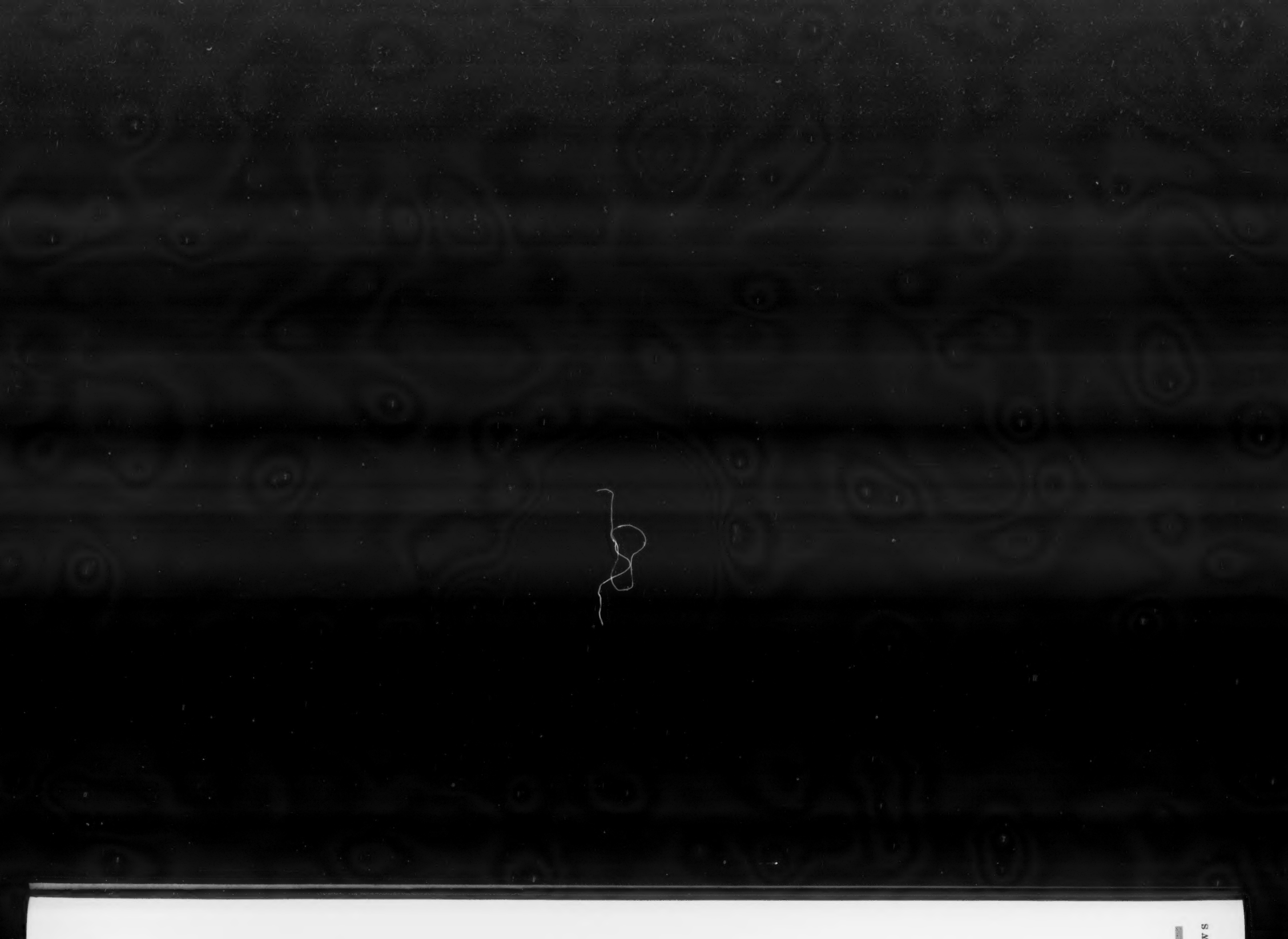
They are the men who make the truck tanks and bodies which you use. As you probably know, the most efficient bodies they build are fabricated from Aluminum. (Light bodies, built from light, strong alloys of Alcoa Aluminum, carry more payload within the capacity of the truck, hence cut haulage costs). Yet only a few years ago builders of tanks and bodies knew nothing about using Aluminum. They had never worked with it.

But when it was suggested that bodies and tanks might be improved by building from Aluminum, these builders eagerly began the task of learning to handle the metal. They cooperated with Alcoa engineers and job shop in perfecting a reliable technique. In remarkably short time the industry was acquainted with sound methods for using Aluminum. Today you can obtain equipment built of Aluminum, soundly constructed, from good builders in every part of the country.

This "know-how," so widespread, is an achievement which you can rely on for dependable results whenever you can save money by hauling more payload and less dead weight on your trucks. ALUMINUM COMPANY OF AMERICA, 2190 Gulf Building, Pittsburgh, Penna.

ALCOA ALUMINUM

The Erie Guardsman
KEEPS THAT NEW LOOK..
LONGER!
MOTOR
CASH VALUE
$000
THIS SALE
GALLONS
000
COMPUTED AT
150
ERIE
THE ONLY PUMP WITH RUST-PROOF HOUSING
BULLETIN BF437 PROVES THE POINT... WRITE FOR IT
BETTER PAINT! LASTS LONGER UNDER ALL WEATHER CONDITIONS
ERIE METER SYSTEMS, INC.
ERIE, PENNSYLVANIA
WESTERN PLANT - TULSA, OKLA.
CANADIAN DISTRIBUTORS - W. D. BEATH & SONS, LTD.
THE "71"
PACIFIC COAST - SHIELDS HARPER & CO.
OAKLAND - SEATTLE - LOS ANGELES
PORTLAND
ERIE
METER SYSTEMS
Erie Builds Good Pumps!

RALPH B. ROARK

Ralph B. Roark, a native Oklahoman, recently appointed manager of Shell Petroleum Corp.'s Mid-Continent activities, in Oklahoma, Kansas and the Texas Panhandle, entered the employ of Shell, then the Roxana Petroleum Corp., in 1917 as a geologist. The production department claimed him in 1920 and, after serving in various capacities and in various fields, he became general field superintendent in 1927, moving to Tulsa. The following year he became production manager. His hobbies are golf and hunting.